



Revision of the EU Ecolabel Criteria for Bed Mattresses

**TECHNICAL REPORT and
PROPOSAL FOR CRITERIA REVISION**

**Technical Report
for
THE REVISION OF THE EU ECOLABEL CRITERIA
FOR BED MATTRESSES**

Version 2

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Revision of the EU Ecolabel Criteria for Bed Mattresses

Technical Report

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1. Introduction

This technical report presents the proposed changes to the EU Ecolabel criteria for the bed mattress product group, as part of the on-going revision process to these criteria.

This report, produced by the Joint Research Centre's Institute for Prospective Technological Studies (JRC-IPTS) and Oakdene Hollins Research & Consulting (UK), provides a description of proposed changes, and outlines the rationale, costs-benefit analysis and necessary test procedures for these changes.

This report follows-on from earlier documents, including a stakeholder consultation document and background report which provide supporting information for the revision on bed mattress markets and discussions of potential changes.^{a,b} The background document has been revised and updated to take into account the feedback from stakeholders and further technical data. The document acts as a reference for the changes outlined in this technical report. All changes included within this document for consideration and discussion are a mixed of entirely new criteria and revisions or updates of existing requirements.

1.1 EU Ecolabel and Revision of the Bed Mattresses Product Group Criteria

The EU Ecolabel is a voluntary scheme, regulated by the European Union^c, which is used to distinguish products and services with high environmental performances. The EU Ecolabel is awarded through an application process which demonstrates that the criteria specified for a particular product group have been met. Successful applicants are then allowed to use the EU Ecolabel logo (the 'Flower') and advertise their product as having been awarded the EU Ecolabel. The environmental criteria for a particular product group are designed in a way that, theoretically, the best 10-20% products on the market in terms of environmental performances can meet them. As technology, markets and legislation change over time, the criteria need to be updated to ensure they remain relevant, as well as strict enough to capture the top 10-20% of products. This approach should also assure that the overall environmental impact of a whole product group is improved.

The existing set of EU Ecolabel criteria for bed mattresses was adopted in July 2009.^d Therefore to ensure that the EU Ecolabel product group criteria for bed mattresses meet these principles a revision processes is on-going, starting in late 2011. Other factors have also been taken into consideration in the process; such as the uptake of the scheme for this product group and changes in the legislative background.

To date, the EU Ecolabel appears to have been very limited interest and uptake within the bed mattress industry based on these old criteria, and only 3 active licences have been identified; Carpenter ApS (certified by Ecolabelling Denmark), Elite SA (certified by VKI Austria) and André Renault (certified by Afnor, France).

Industry stakeholder consultation indicated that the industry is well informed of the existence of the EU Ecolabel for this product group, and this cannot be considered the reason for the limited uptake. Various other reasons were indicated for the limited uptake of the EU Ecolabel, with the following cited explicitly;

^a http://susproc.jrc.ec.europa.eu/mattresses/docs/BedMattresses_StakeholdersQuestionnaire.pdf

^b http://susproc.jrc.ec.europa.eu/mattresses/docs/BackgroundReportCriteriaRevision_DRAFT.pdf

^c Regulation (EC) No 66/2010

^d Commission Decision 2009/598/EC

- lack of clarity and difficulties in meeting some of the existing criteria of the Commission Decision 2009/598/EC (e.g. flame retardants)
- cost and unclear benefits of applying,
- lack of purchaser awareness/demand.

In addition to this, legislative changes have been made at the EU level since the last criteria revision, which need to be reflected in the updated criteria. In particular, the following elements have to be taken into due account:

- **Article 6.1** – Aligning the criteria with the strategic objectives of the Commission on the environmental performance of products.
- **Article 6.3** – Requiring scientific basis to define criteria, specifically through lifecycle analysis methodology.
- **Article 6.6** – To restrict the use of substances which are classified as toxic, hazardous to the environment, carcinogenic, mutagenic or toxic for reproduction
- **Article 6.7** – With respect to Article 6.6, allow the derogation of substances which have no alternative available.

These factors play a key role in the revision of the existing criteria for this product group. In addition, other ecolabelling schemes have similar product groups (see Table 1) which have had more recent revisions, providing further elements to consider when updating the existing EU Ecolabel criteria. This is particularly relevant as Article 6.3.f of the EU Ecolabel Regulation specifies that the EU Ecolabel should align with other schemes to enhance synergies.

Table 1: Summary of identified ecolabels applicable to mattresses

Ecolabel name	Region	Product group	Date of adoption of the latest version	Known licences/ companies awarded
EU Ecolabel	EU	Mattresses	July 2009 ^e	3
Blue Angel	Germany	Mattresses	April 2010 ^f	4
Austrian Ecolabel	Austria	Mattresses	Jan 2011 ^g	4
Nordic Swan	Denmark, Finland, Iceland, Norway, Sweden	Furniture	March 2011 (version 4) ^h	5
Green Mark	Taiwan	Mattresses	September 2011 (version 1.0.1) ⁱ	14 (products)

This revision falls at an opportune time to include these factors, as well as include the revised criteria updates due to technical and market changes in the bed mattress sector.

1.1.1 The Revision Process

^e Commission Decision 2009/598/EC

^f http://www.blauer-engel.de/de/produkte_marken/produktsuche/produkttyp.php?id=309, accessed 09/01/2012

^g http://www.umweltzeichen.at/cms/upload/20%20docs/richtlinien-lf/uz55_r2a-matratzen_2010.pdf, accessed 09/01/2012

^h <http://www.nordic-ecolabel.org/Templates/Pages/CriteriaPages/CriteriaGetFile.aspx?fileID=128603001>, accessed 09/01/2012

ⁱ http://greenliving.epa.gov.tw/GreenLife/eng/E_Criteria.aspx, accessed 09/01/2012

The revision of the EU Ecolabel criteria for the Bed Mattress product group has been on-going since late 2011, and has followed the pathway outlined below;

- Identification of potential issues, and consultation with stakeholders using a preliminary proposal document
- Generation of a preliminary background report outlining the product group definition and criteria, with issues raised based on market survey and technical information (including lifecycle analysis data), as well as feedback from the preliminary proposal document.
- Background information and proposals for scope and criteria revision were discussed intensively with stakeholders.
- The background report was revised and updated in line with the feedback and suggestions received from stakeholders, as well as additional information added, to yield a strong evidence base for proposing final changes to the scope and criteria for the bed mattress product group.

This technical report draws on the information gathered to date summarising the work done. Following this the proposed revised scope and criteria will be examined. New scope and criteria are defined, and the rationale behind changes, additions or preservation of criteria will be discussed. A cost benefit analysis of changes, and a description and costing of required test procedures is also provided. This evidence will be used as the basis for discussing on the final set of revised criteria.

1.2 Technical Description of Bed Mattresses

Broadly bed mattresses can be viewed as products that provide a surface to sleep or rest upon. At present the EU Ecolabel defines this more closely to include whole products, generally with a cloth cover that is filled with materials, and that can be placed on an existing bed structure.

Mattresses falling into this definition are generally constructed of three components, each designed to provide the desired properties of the mattress;

- The **core** is the main component of a mattress used to provide support. Mattress cores are generally made from one of three materials; steel springs, latex foam, and polyurethane foam (PUR). These materials are the most common method of categorising mattresses.
- The **shell** (or padding/wadding) forms a layer around the core to refine the overall performance of the mattress. All spring mattress and many other types of mattress have this additional padding. Typical materials include: PUR foam, latex foam, horse or camel hair, coconut fibres, polyester, cotton, wool, flax, hemp, felt, jute and sisal. These materials are held together by glue or sewing.
- The **tick** is the outer cover of a mattress which provides a comfortable and protective top layer. Common materials used for the tick include cotton, polyester, silk, wool and viscose. The tick can be fixed to the mattress or removable.

Most mattresses fall within the categories defined by the core materials (i.e. springs, PUR and latex), a further category “other” includes mattresses such as airbeds and water beds, which are not included within the scope of the EU Ecolabel.

Within the existing EU Ecolabel provision is also made for bed bases, i.e. a type of mattress with a wooden/metal frame integrated. Wooden bed bases are typically sold in Scandinavian countries.

2. The Commission Decision 2009/598/EC

2.1 Existing EU Ecolabel Definition

Within the existing EU Ecolabel criteria document^j, mattresses are defined using the following wording:

1. *The product group 'bed mattresses' shall comprise:*
 - a. *Bed mattresses, which are defined as products that provide a surface to sleep or rest upon for indoor use. The products consist of a cloth cover that is filled with materials, and that can be placed on an existing supporting bed structure;*
 - b. *The materials filling the bed mattresses, which may include: latex foam, polyurethane foam and springs;*
 - c. *Wooden bed bases that support the bed mattresses.*
2. *The product group shall include spring mattresses, which are defined as an upholstered bed base consisting of springs, topped with fillings, as well as mattresses fitted with removable and/or washable covers.*
3. *The product group shall not comprise inflatable mattresses and water mattresses, as well as mattresses classified under Council Directive 93/42/EEC (medical devices).*

As described above, this definition includes the most common mattress types (namely latex, PUR and spring), as well some additional product such can be considered hybrid products, between mattresses and beds.

2.2 Summary of Old Criteria

This summary provides as a guide to the existing criteria. The full criteria document (Commission Decision of 2009/598/EC of 9 July 2009) should be consulted for a complete outline. The existing criteria consists of 13 sections, categorised by material type, criteria areas, and other requirements.

^j Decision 2009/598/EC of 9 July 2009

1. *Latex Foam* – Only applicable if latex is greater than 5% of mattress weight. Concentrations must be below values stated.

Criterion number	Applicable to	Criteria	Compliance
1.1	Extractable heavy metals	Limits on concentrations of: Copper <2 ppm Chromium, Nickel <1 ppm Arsenic, Lead, Antimony, Cobalt <0.5 ppm Cadmium <0.1 ppm Mercury <0.02 ppm	Testing by atomic emission spectroscopy with inductively coupled plasma or with hydride or cold vapour technique
1.2	Formaldehyde	Extractable formaldehyde <20 ppm or <0.005 mg/m ³ (dependent on testing method)	EN ISO 14184-1 or chamber testing according to ENV 13419-1, with EN ISO 16000-3 or VDI 3484-1 for air sampling and analysis
1.3	VOCs	VOCs <0.5 mg/m ³	Chamber testing or DIN ISO 16000-6 for air sampling and analysis
1.4	Dyes, pigments, flame retardants and auxiliary chemicals	As Commission Decision 2009/567/EC of 9 July 2009 for textile products. (a) Limits on metal ion impurities in dyes (colour matter with fibre affinity). Exclusion made for metals which are integral part of the dye molecule. (b) Limits on metal ion impurities in pigments (insoluble colour matter without fibre affinity) (c) Chrome mordant dyeing is not allowed (d) Azo-dyes which may cleave any one of a selection of aromatic amines are banned (e) A list of specific dyes which are classed as carcinogens, mutagenic or toxic to reproduction. Limits are also placed on dyes or dye preparations which contain greater than 0.1% by weight of substances which have specified risk phrases associated with them. (f) Potentially sensitizing dyes (listed) are not allowed.	Declaration of non-use or compliance with relevant EU document
1.5	Metal complex dyes	Metal complex dyes based on copper, lead, chromium or nickel shall not be used.	Declaration of non-use
1.6	Chlorophenols	Chlorophenols (salts and esters) <0.1 ppm mono, di-chlorinated phenols (salts and esters) <1 ppm	Test through gas chromatography of an extracted sample
1.7	Butadiene	Concentration of butadiene <1 ppm	Tested through gas

Criterion number	Applicable to	Criteria	Compliance
			chromatography
1.8	Nitrosamines	Nitrosamines <0.0005 mg/m ³	Tested through chamber test

2. *Polyurethane Foam – Only applicable if PUR foam is greater than 5% of mattress weight.*

Criterion number	Applicable to	Criteria	Compliance
2.1	Extractable heavy metals	As 1.1 – Latex	As 1.1 – Latex
2.2	Formaldehyde	As 1.2 – Latex	As 1.2 – Latex
2.3	VOCs	As 1.3 – Latex	As 1.3 – Latex
2.4	Dyes, pigments, flame retardants and auxiliary chemicals	As 1.4 – Latex	As 1.4 – Latex
2.5	Metal complex dyes	As 1.5 – Latex	As 1.5 – Latex
2.6	Organic tin	Mono and di-organic, tri-organic tin compounds shall not be used.	Declaration of non-use
2.7	Blowing agents	Halogenated organic compounds shall not be used as blowing agents, or auxiliary blowing agents.	Declaration of non-use

3. *Wires and springs – Only applicable if PUR foam contributes to more than 5% of the total weight of the mattress.*

Criterion number	Applicable to	Criteria	Compliance
3.1	Degreasing	A closed system is required when degreasing wire or springs.	Self-declaration
3.2	Galvanisation	Wire and springs must not be coated with a galvanic metallic layer	Self-declaration

4. *Coconut Fibres – Only applicable if coconut fibres contributes to more than 5% of the total weight of the mattress*

Criterion number	Applicable to	Criteria	Compliance
4	Coconut fibres	If rubberised, latex used must comply with criteria for latex foam	As points 1(1) to 1(8)

5. *Wooden Material*

Criterion number	Applicable to	Criteria	Compliance
5.1	Sustainable forest management	<p>Sustainable forest management:</p> <p>a) All virgin solid wood shall originate from forests which are sustainably managed (Sustainable Forest Management and UNCED Forest Principles)</p> <p>b) 60% of virgin solid wood shall originate from forests with certified third party forest certification schemes</p> <p>c) Wood not certified must not originate from</p> <ul style="list-style-type: none"> • disputed land rights or primary old growth forests • illegal harvesting • uncertified high conservation value forests. 	<p>The applicant shall indicate types, quantities and origins of the wood used</p> <p>Certified sources – control chain of custody is required as proof of source</p> <p>Non-certified sources – species, quantity and origin of timber must be provided.</p>
5.2	Formaldehyde emissions from untreated raw wood.	<p>Formaldehyde emissions from untreated raw wood-based materials.</p> <p>Particle board – emissions of formaldehyde shall not exceed 50% of the threshold value that would allow it to be classified as E1 according to EN 312-1.</p> <p>Fibreboard – emissions of formaldehyde shall not exceed 50% of the threshold value that would allow it to be classified as A1 according to EN 622-1. Class A will be accepted if fibreboards represent less than 50% of wood or wood material in product.</p>	<p>Evidence that wood based materials comply with EN 312-1</p> <p>Evidence that wood based materials comply with EN 13986</p>

6. *Textiles (fibres and fabric) – must meet following criteria for dyes and other chemical products, as well as fitness for use*

Criterion number	Applicable to	Criteria	Compliance
6.1	Biocides	Chlorophenols (their salts and esters), PCB and organo-tin compounds shall not be used during transportation or storage of mattresses and semi-manufactured mattresses	Declaration of non-use. Verification by standard test may be required
6.2	Auxiliary chemicals	Alkylphenoethoxylates (APEOs), linear alkylbenzene sulfonates (LAS), bis(hydrogenated tallow alkyl) dimethyl ammonium chloride (DTDMAC), distearyl dimethyl ammonium chloride (DSDMAC), di(hardened tallow) dimethyl ammonium chloride (DHTDMAC), ethylene diamine tetra acetate (EDTA), and diethylene triamine penta acetate (DTPA) shall not be used in any of the preparations or formulations used	Declaration of non-use
6.3	Detergents, fabric softeners and complexing agents	95% by weight of detergents, fabric softeners and complexing agents used at each wet processing site shall be "sufficiently degradable" or eliminable in wastewater treatment plants (see criterion related to auxiliaries and finishing agents for fibres and yarns). This is with the exception of surfactants in detergents at each wet processing site, which shall be "ultimately aerobically biodegradable" (see Regulation (EC) No 648/2004)	Appropriate documentation (safety data sheets, test reports and/or declarations, indicating the test methods and results)
6.4	Bleaching agents	Only for natural fibres, chlorine agents are excluded for bleaching yarns, fabrics and end products.	Declaration of non-use
6.5	Impurities in dyes	As 1.4 Latex	As 1.4 Latex
6.6	Impurities in pigments	As 1.4 Latex	As 1.4 Latex
6.7	Chrome mordant dyeing	As 1.4 Latex	As 1.4 Latex
6.8	Metal complex dyes	If metal complex dyes based on copper, chromium or nickel are used: – In case of cellulose dyeing, where metal complex dyes are part of the dye recipe, less than 20 % of each of those metal complex dyes applied (input to the process) shall be discharged to waste water treatment	Declaration of non-use or documentation and test reports using the following test methods: ISO 8288 for Cu, Ni; EN 1233 for Cr.

Criterion number	Applicable to	Criteria	Compliance
		<p>(whether on-site or off-site).</p> <ul style="list-style-type: none"> – In case of all other dyeing processes, where metal complex dyes are part of the dye recipe, less than 7 % of each of those metal complex dyes applied (input to the process) shall be discharged to waste water treatment (whether on-site or off-site). – The emissions to water after treatment shall not exceed: Cu 75 mg/kg (fibre, yarn or fabric); Cr 50 mg/kg; Ni 75 mg/kg. 	
6.9	Azo dyes	As 1.4 Latex	As 1.4 Latex
6.10	Dyes that are carcinogenic, mutagenic or toxic to reproduction	As 1.4 Latex	As 1.4 Latex
6.11	Potentially sensing dyes	As 1.4 Latex	As 1.4 Latex
6.12	Colour fastness to perspiration (acid/alkaline)	The colour fastness to perspiration (acid/alkaline) must meet level 3-4. A level of 3 is allowable when they are dark (standard depth > 1/1), and are made of regenerated wool or more than 20% silk. This does not apply to white products, or products which are neither dyed nor printed.	Testing according to EN:ISO 105 E04
6.13	Colour fastness to wet rubbing	Colour fastness to wet rubbing shall be at least 2-3. A level of 2 is allowable for indigo dyed denim. This does not apply to white products, or products which are neither dyed nor printed.	Testing according to EN:ISO 105 X12
6.14	Colour fastness to dry rubbing	The colour fastness to dry rubbing must be at least level 4. Level 3-4 is allowable for indigo dyed denim. This does not apply to white products, or products which are neither dyed nor printed.	Testing according to EN:ISO 105 X12

7. Glues

Criterion number	Applicable to	Criteria	Compliance
7	Glues	<p>Glues containing organic solvents are not permissible.</p> <p>Glues shall not be used which at time of application which are classified as carcinogenic (R45, R49, R40), harmful to the reproductive system (R46, R40), genetically harmful (R60-R63), toxic (R23-R28). The corresponding list of Hazard Statements is also provided.</p>	Declaration that the glues used comply with this criterion, together with supporting documentation.

8. VOCs and SVOCs on the entire mattress

Criterion number	Applicable to	Criteria	Compliance
8	VOCs and SVOCs	VOC emissions from entire mattress shall not exceed specified limits (for formaldehyde, other aldehydes, total organic compounds). This is made in analogy with the 'health risk assessment process for emissions of volatile organic compounds (VOC) from building products' developed in 2005 by the AgBB.	Chamber testing to be performed according to EN 13419-1, EN13419-2 and ISO 16000-6 (VOCs) standards

9. Flame retardants used in the entire mattress

Criterion number	Applicable to	Criteria	Compliance
9	Flame retardants	<p>Only reactive flame retardants are permissible (i.e. additive flame retardants are non-permissible). If a flame retardant has any of the R-phrases specified in directive 67/548/EEC (see below), these must not apply once the flame retardant is in its applied form.</p> <p>R40 (limited evidence of a carcinogenic effect), R45 (may cause cancer), R46 (may cause heritable genetic damage), R49 (may cause cancer by inhalation), R50 (very toxic to aquatic organisms), R51 (toxic to aquatic organisms), R52 (harmful to aquatic organisms), R53 (may cause long-term adverse effects in the aquatic environment), R60 (may impair fertility), R61 (may cause harm to the unborn child), R62 (possible risk of impaired fertility), R63 (possible risk of harm to the unborn child), R68 (possible risk of irreversible effects)</p>	<p>Declaration that no additive flame retardants are present</p> <p>Declaration of which reactive flame retardants have been used, and their conformity with the criterion</p>

Criterion number	Applicable to	Criteria	Compliance
		The corresponding list of Hazard Statements is also provided.	

10. Biocides in the final product

Criterion number	Applicable to	Criteria	Compliance
10	Biocides in the final product	Only biocidal products containing biocidal active substances defined in relevant EU Directives are allowed.	Declaration of non-use

11. Durability

Criterion number	Applicable to	Criteria	Compliance
11	Durability of mattress	The lifetime of a household mattress is expected to be 10 years; this will vary depending on application. Adult mattress – Loss of height <15%, loss of firmness <20% Baby mattress – Loss of height <15%, loss of firmness <20%	Test report verifying these criteria are met using EN1957 (100 vs. 30 000 cycles)

12. Packaging requirements

Criterion number	Applicable to	Criteria	Compliance
12	Packaging	Packaging shall be made from recyclable material, with plastic type marked according to ISO 11469. Specified text referring to the EU Ecolabel must appear	Declaration of compliance, along with sample of product packaging and information supplied

13. Information appearing on the Ecolabel

Criterion number	Applicable to	Criteria	Compliance
10	Information appearing on the Ecolabel	Box 2 of the Ecolabel shall contain specific text related: – 'Minimises indoor air pollution' – 'Hazardous substances restricted' – 'Durable and high quality'	Declaration of compliance, along with sample of packaging with label

3. The revised criteria document

This section outlines the revision of the criteria which are proposed based on data gathered during the revision process, feedback from stakeholders and insight gained through a lifecycle analysis.

The following visual codes have been used when drafting this report:

- Green boxes contain elements for which there should be general consensus;
- Yellow boxes contain elements that are to be discussed with stakeholders because of new proposals presented and/or presence of split views;
- Red boxes contain elements which are withdrawn or rejected;
- A red font is used to point out main changes of wording in comparison with the Commission Decision 2009/598/EC;
- Elements that could be influenced by the parallel revision of the EU Ecolabel criteria for textiles are highlighted in yellow;

3.1 Product Group Definition

Proposed text:

Article 1:

1. The product group “bed mattresses” shall comprise products providing a surface to sleep or rest upon for indoor use.
2. The products consist of a cloth cover that is filled with materials and that can be placed on an existing supporting bed structure or designed for free standing. Materials filling and covering the bed mattresses may include latex and polyurethane foam, metal parts, textile fibres and fabrics.
3. *The product group shall not comprise wooden and upholstered bed bases, inflatable mattresses and water mattresses, as well as mattresses classified under Council Directive 93/42/EEC (medical devices)^k.*

Description of the revised scope, rationale and impact

A new wording is proposed for the definition of the product group. The following changes are applied:

- Section 1c is removed to omit bed bases from the product scope. Bed bases are proposed to be moved to the furniture product group, whose revision is about to start. A new section 3 could be added to clarify that bed frames and bed bases are considered in a different product group;
- Sections 1a and 1b were rearranged with aim of clarifying and improving the definition of the product scope;
- Section 2 is removed and replaced by an updated section 3, which now specifies that wooden and upholstered bed bases are also not eligible within this product group.

The main change is related to the exclusion of bed based from the product scope. These products indeed offer the same function of a mattress but they are designed with an integrated frame. In other terms, a mattress would need a bed frame to be considered functionally equivalent to a bed base. For this reason, bed based can be considered a "hybrid" product being closely linked to pieces

^k

OJ L 169, 12.7.1993, p. 1.

of furniture and they should be moved within the furniture product group. This differentiation would allow for a more accurate categorization. Moreover it should be observed that at the moment there are apparently no bed bases awarded with the EU Ecolabel.

Based on the proposed relocation of bed bases, criterion 5 of the Commission Decision 2009/598/EC ("Wooden materials") would disappear from the new set of revised criteria.

It was proposed to move bed mattresses to the furniture product group, in second step, in analogy with the approach followed by Nordic Swan.

Follow-up:

The proposal was discussed with Member States but there are still split views about this issue. Since divergences have not been solved, the proposal of moving bed bases to the furniture product group will be kept.

3.2 Criteria

Proposed criteria

Criteria Area A. Materials assembling the product

1. Latex foam
2. PUR foam
3. Spring and wires
4. Coconut fibres
5. Textiles (fabrics and fibres used as ticking or padding)
6. Glues and adhesives
7. Flame retardants
8. Biocides
9. Plasticizers

Criteria Area B. Use of the product

10. Restrictions on hazardous substances and mixtures in the final product
11. Emission of Volatile Organic Compounds (VOCs) from the mattress
12. Technical performance

Criteria Area C. End of life

13. Design for disassembly and recovery of materials

Criteria Area D. Consumer information

14. Information appearing on the EU Ecolabel
15. Additional information to consumers

Prescriptions and text proposed for each criterion are presented in the following sections, including the rationale behind any changes applied. A cost-benefit analysis and a description of required test procedures and associated costs are also provided, whenever possible.

DRAFT

Criterion 1. Latex foam

Heading

Criterion 1. Latex foam

Note: The following requirements need to be met only if latex foam contributes to more than 5% of the total weight of the mattress

Criterion 1(a)

(a) Restricted substances

The concentrations of the substances listed below shall not exceed the following values:

Group of substances	Substance	Limit value (ppm)	Assessment and verification conditions
Chlorophenols	mono- and di-chlorinated phenols (salts and esters)	1.0	A
	Other chlorophenols	0.10	A
Heavy metal	As (Arsenic)	0.50	B
	Cd (Cadmium)	0.10	B
	Co (Cobalt)	0.50	B
	Cr (Chromium), total	1.0	B
	Cu (Copper)	2.0	B
	Hg (Mercury)	0.020	B
	Ni (Nickel)	1.0	B
	Pb (Lead)	0.50	B
	Sb (Antimony)	0.50	B
Pesticides*	Aldrin	0.040	C
	o,p-DDE	0.040	C
	p,p-DDE	0.040	C
	o,p-DDD	0.040	C
	p,p-DDD	0.040	C
	o,p-DDT	0.040	C
	p,p-DDT	0.040	C
	Diazinone	0.040	C
	Dichlorfenthion	0.040	C
	Dichlorvos	0.040	C

	Dieldrin	0.040	C
	Endrin	0.040	C
	Heptachlor	0.040	C
	Heptachlorepoxyde	0.040	C
	Hexachlorbenzene	0.040	C
	Hexachlorcyclohexane	0.040	C
	Lindane	0.040	C
	Malathion	0.040	C
	Methoxichlor	0.040	C
	Mirex	0.040	C
	Parathion-ethyl	0.040	C
	Parathion-methyl	0.040	C
Others	Butadiene	1.0	D
* Only for foams composed of natural latex for at least 20% by weight			

Assessment and verification:

A. The applicant shall provide a test report presenting the results of the test procedure described in the EuroLatex ECO-Standard Version 14.02.02-english, available at <http://www.eurolatex.com/EuroLatexECOStandard.pdf>. 5 g of sample shall be milled and chlorophenols shall be extracted in the form of phenol (PCP), sodium salt (SPP) or esters. The extracts shall be analysed by means of gas chromatography (GC). Detection shall be made with mass spectrometer or electron capture detector (ECD).

B. The applicant shall provide a test report presenting the results of the test described in the EuroLatex ECO-Standard Version 14.02.02-english, available at <http://www.eurolatex.com/EuroLatexECOStandard.pdf>. Milled sample material is eluted in accordance with DIN 38414-S4 in a ratio of 1:10. The resultant filtrate shall be passed through a 0.45 µm membrane filter (if necessary by pressure filtration). The solution obtained shall be examined for the content of heavy metals by atomic emission spectrometry with inductively coupled plasma (ICP-OES) or by atomic absorption spectrometry using a hydride or cold vapour process.

C. The applicant shall provide a test report presenting the results of the test described in the EuroLatex ECO-Standard Version 14.02.02-english, available at <http://www.eurolatex.com/EuroLatexECOStandard.pdf>. 2 g of sample is extracted in an ultrasonic bath with a hexane/dichloromethane mixture (85/15). The extract is cleaned up by acetonitrile agitation or by adsorption chromatography over florisil. Measurement and quantification are by gas chromatography with detection on an electron capture detector or by coupled gas chromatography/mass spectrometry. The testing on pesticides is requested for latex foams with at least a content of 20% natural latex.

D. The applicant shall provide a test report presenting the results of the test described in the EuroLatex ECO-Standard Version 14.02.02-english, available at <http://www.eurolatex.com/EuroLatexECOStandard.pdf>. Following milling and weighing of the foam, headspace sampling shall be performed. Butadiene content shall be determined by gas chromatography with detection by flame ionisation. Alternatively a certificate of the raw material

supplier can be requested.

Criterion 1(b)

(b) Emission of Volatile Organic Compounds (VOCs)

The room concentrations of the substances reported below, calculated through the test chamber method, shall not exceed the following values after a period of 30 hours.

Substance	Limit value (mg/m ³)
1,1,1 – trichloroethane	0.20
4-Phenylcyclohexene	0.020
Carbon Disulphide	0.020
Formaldehyde*	0.0050
Nitrosamines**	0.00050
Styrene	0.010
Tetrachloroethylene	0.150
Toluene	0.10
Trichlorethylene	0.050
Vinyl chloride	0.00010
Vinyl cyclohexene	0.0020
Aromatic hydrocarbons (total)	0.30
VOCs (total)	0.50

* Alternatively, the concentration of formaldehyde shall not exceed 20 ppm as measured with EN ISO 14184-1.

** n-nitrosodimethylamine (NDMA), n-nitrosodiethylamine (NDEA), n-nitrosomethylethylamine (NMEA), n-nitrosodi- i-propylamine (NDIPA), n-nitrosodi- n- propylamine (NDPA), n-nitrosodi- n- butylamine (NDBA), n-nitrosopyrrolidinone (NPYR), n-nitrosopiperidine (NPIP), n-nitrosomorpholine (NMOR)

Assessment and verification: The applicant shall provide a test report presenting the results of the test described in the EuroLatex ECO-Standard Version 14.02.02-english, available at <http://www.eurolatex.com/EuroLatexECOSstandard.pdf>. A test chamber analysis shall be performed in accordance with the standard EN ISO 16000-9. The wrapped sample should be stored at room temperature at least for 24 hours. After this period the sample will be unwrapped and immediately transferred into the test chamber. The sample will be placed on a sample holder, which allows air access from all sides. The climatic factors should be adjusted according to EN ISO 16000-9. For comparison of test results, the area specific ventilation rate ($q=n/l$) should be 1. The ventilation rate should be between 0,5 and 1. The air sampling will be started 24 hours after chamber loading and finished latest 30 hours.

The analysis of formaldehyde and other aldehydes shall comply with the standard EN ISO 16000-3. Alternatively, formaldehyde emissions shall be determined following the test method EN ISO 14184-1. 5 g of sample shall be sunk into 100 g of water and heated to 40°C for 1 hour. Formaldehyde shall

be extracted with acetylacetone and analysed colorimetrically.

The analysis of nitrosamines shall comply with Hauptverband der gewerblichen Berufsgenossenschaften ZH 1/120.23 (or equivalent). The following nitrosamines shall be tested: n-nitrosodimethylamine (NDMA), n-nitrosodiethylamine (NDEA), n-nitrosomethylethylamine (NMEA), n-nitrosodi- i-propylamine (NDIPA), n-nitrosodi- n- propylamine (NDPA), n-nitrosodi- n- butylamine (NDBA), n-nitrosopyrrolidinone (NPYR), n-nitrosopiperidine (NPIP), n-nitrosomorpholine (NMOR).

The analysis of the other VOCs shall comply with the standard EN ISO 16000-6.

Criterion 1(c)

(c) Dyes and pigments

Criterion 5(e) shall be respected

Assessment and verification: The applicant shall provide a declaration of compliance with this criterion, together with supporting documentation.

Description of the criterion and rationale

Article 6.3.f of the EU Ecolabel Regulation states that the EU Ecolabel should seek to align with other ecolabels to enhance synergies between schemes. Criteria on latex foam from other labelling schemes have been reviewed extensively. The euroLATEX ECO-Standard^a was considered the main reference with which to align both requirements on restricted substances and the related assessment and verification procedures.

The following changes have been proposed based on the euro LATEX ECO-Standard:

1. Introduction of a list of banned pesticides, when the natural latex content is more than 20% by weight.
2. Addition of limits on VOC emissions, specifically;
 - Toluene < 0.1 mg/m³
 - Vinyl cyclohexene < 0.002 mg/m³
 - Styrene < 0.01 mg/m³
 - 4-Phenylcyclohexene < 0.02 mg/m³
 - 1,1,1 – trichloroethane < 0.2 mg/m³
 - Tetrachloroethylene < 0.15 mg/m³
 - Trichlorethylene < 0.05 mg/m³
 - Vinyl chloride < 0.1µg/m³
 - total cumulative emissions of aromatic hydrocarbons < 0.3 mg/m³
 - total cumulative emissions of VOCs < 0.5 mg/m³
3. Inclusion of formaldehyde and nitrosamines in a single prescription on emission of VOCs
4. Alignment of verification procedures to the euroLATEX ECO-Standard

^a <http://www.eurolatex.com/EuroLatexECOStandard.pdf>

In addition, a limit on the emissions of carbon disulphide is also proposed based on the Blue Angel scheme for mattresses^a (Emissions of carbon disulphide must be less than $< 0.02 \text{ mg/m}^3$, verification through existing method DIN ISO-16000-6). Carbon disulphide is a gas and has the following hazard statements associated with it:

- 48/23 – Harmful: danger of serious damage to health by prolonged exposure through inhalation
- R62 - Possible risk of impaired fertility
- R63 - Possible risk of harm to the unborn child.

The Commission Decision 2009/598/EC contains similar requirements on dyes and pigments for latex foam, PUR foam and textiles. While requirements on dyes and pigments are of main pertinence for textiles, they do not seem the most important issue for foams (they are not considered within the related industry standards) but they are kept within the revised criterion for Latex foam. The approach followed within the current revision was to revise this set of requirement for textiles and to link to the corresponding criterion 5(e).

Please make reference that, when available, CEN/TS 16516 (2013) shall be applied in analogy.

Cost Benefit Analysis:

The changes made do not substantially alter the criteria, but simply update limits on emissions and substances concentrations to reflect current practice. Some additional restrictions have been introduced, however, because of their presence in other relevant labelling schemes, they should not create complications to producers of mattresses and their suppliers.

Test Procedures and Economic Burdens:

Testing procedures have been aligned as much as possible to those of the euroLATEX ECO-Standard. However, this action is not expected to increase prohibitively the economic burdens of testing. Additional declarations of non-use will be required from some suppliers and manufacturers. These should not present significant burdens on applicants assuming the information from suppliers is available.

Follow-up

Industry appreciated this initiative. Some corrections were necessary to align more coherently with their respective standards.

^a http://www.blauer-engel.de/en/products_brands/vergabegrundlage.php?id=140

Criterion 2. PUR foam

Heading

Criterion 2. PUR foam

Note: The following requirements need to be met only if PUR foam contributes to more than 5% of the total weight of the mattress.

Criterion 2(a)

(a) Restricted substances

The concentrations of the substances listed below shall not exceed the following values:

Group of substances	Substance (acronym, CAS number, element symbol)	Limit value	Assessment and verification conditions
Biocides	Substances meeting requirement of criterion 8	Not added intentionally	A
Heavy Metals	As (Arsenic)	0.20 ppm	B
	Cd (Cadmium)	0.10 ppm	B
	Co (Cobalt)	0.50 ppm	B
	Cr (Chromium), total	1.0 ppm	B
	Cr VI (Chromium VI)	0.010 ppm	B
	Cu (Copper)	2.0 ppm	B
	Hg (Mercury)	0.020 ppm	B
	Ni (Nickel)	1.0 ppm	B
	Pb (Lead)	0.20 ppm	B
	Sb (Antimony)	0.50 ppm	B
	Se (Selenium)	0.50 ppm	B
Isocyanates	Total chlorine content	0.070 % w/w	A
Plasticizers	Di-iso-nonylphthalate (DINP, 28553-12-0)	-	-
	Di-n-octylphthalate (DNOP, 117-84-0)	-	-
	Di (2-ethylhexyl)-phthalate (DEHP, 117-81-7)	-	-
	Di-iso-decylphthalate (DIDP, 26761-40-0)	-	-

	Butylbenzylphthalate (BBP, 85-68-7)	-	-
	Dibutylphthalate (DIBP, 84-74-2)	-	-
	Sum	0.010 % w/w	C
	Phthalate plasticizers	Not added intentionally	A
TDA and MDA	2,4 Toluenediamine (2,4 TDA, 95-80-7)	5.0 ppm	D
	4,4" Diaminodiphenylmethane (4,4" MDA, 101-77-9)	5.0 ppm	D
Tinorganic substances	Tributyltin (TBT)	50 ppb	E
	Dibutyltin (DBT)	100 ppb	E
	Monobutyltin (MBT)	100 ppb	E
	Tetrabutyltin (TeBT)	-	-
	Monooctyltin (MOT)	-	-
	Diocetyl tin (DOT)	-	-
	Tricyclohexyltin (TcyT)	-	-
	Triphenyltin (TPhT)	-	-
Sum	500 ppb	E	
Others	Chlorinated or brominated dioxines or furans	Not added intentionally	A
	Chlorinated hydrocarbons (1,1,2,2-Tetrachloroethane, Pentachloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethylene)	Not added intentionally	A
	Chlorinated phenols (PCP, TeCP, 87-86-5)	Not added intentionally	A
	Hexachlorocyclohexane (58-89-9)	Not added intentionally	A
	Monomethyldibromo-Diphenylmethane (99688-47-8)	Not added intentionally	A
	Monomethyldichloro-Diphenylmethane (81161-70-8)	Not added intentionally	A
	Nitrites	Not added intentionally	A
	Polybrominated Biphenyls (PBB, 59536-65-1)	Not added intentionally	A
	Pentabromodiphenyl Ether	Not added	A

	(PeBDE, 32534-81-9)	intentionally	
	Octabromodiphenyl Ether (OBDE, 32536-52-0)	Not added intentionally	A
	Polychlorinated Biphenyls (PCB, 1336-36-3)	Not added intentionally	A
	Polychlorinated Terphenyls (PCT, 61788-33-8)	Not added intentionally	A
	Tri-(2,3-dibromo-propyl)-phosphate (TRIS, 126-72-7)	Not added intentionally	A
	Trimethylphosphate (512-56-1)	Not added intentionally	A
	Tris-(aziridinyl)-phosphin oxide (TEPA, 5455-55-1)	Not added intentionally	A
	Tris(2-chloroethyl)-phosphate (TCEP, 115-96-8)	Not added intentionally	A
	Dimethyl methylphosphonate (DMMP, 756-79-6)	Not added intentionally	A

Assessment and verification:

A. The applicant shall declare that the substance was not added intentionally to the foam formulation.

B. The applicant shall provide a test report presenting the results of the test described in the EuroLatex ECO-Standard Version 14.02.02-english, available at <http://www.eurolatex.com/EuroLatexECOStandard.pdf>. Milled sample material is eluted in accordance with DIN 38414-S4 in a ratio of 1:10. The resultant filtrate shall be passed through a 0.45 µm membrane filter (if necessary by pressure filtration). The solution obtained shall be examined for the content of heavy metals by atomic emission spectrometry with inductively coupled plasma (ICP-OES) or by atomic absorption spectrometry using a hydride or cold vapour process.

C. The applicant shall provide a test report presenting the results of the test described in the CertiPUR Technical Requirements for the CertiPUR label, available at http://www.europur.com/uploads/DocumentsLibrary/documents/CertiPUR_Technical_Paper_11.05.2011.pdf. The sampling procedure outlined there will be followed. The sample must be a composite of 6 pieces to be taken from beneath each samples face (to a maximum of 2 cm from the surface). Extraction shall be performed with dichloromethane using validated method and followed by analysis with GC/MS or HPLC/UV.

D. The applicant shall provide a test report presenting the results of the test described in the CertiPUR Technical Requirements for the CertiPUR label, available at http://www.europur.com/uploads/DocumentsLibrary/documents/CertiPUR_Technical_Paper_11.05.2011.pdf. The sampling procedure outlined there will be followed. The sample must be a composite of 6 pieces to be taken from beneath each samples face (to a maximum of 2 cm from the surface). Extraction shall be performed with 1% aqueous acetic acid solution. Four repeat extractions of the same foam sample shall be performed maintaining the sample weight to volume ratio of 1:5 in each case. The extracts shall be combined, made up to a known volume, filtered and analysed by HPLC-UV or HPLC-MS. If HPLC-UV shall be performed and interference shall be suspected, reanalysis with

HPLC-MS should be performed.

E. The applicant shall provide a test report presenting the results of the test described in the CertiPUR Technical Requirements for the CertiPUR label, available at http://www.europur.com/uploads/DocumentsLibrary/documents/CertiPUR_Technical_Paper_11.05.2011.pdf. The sampling procedure outlined there will be followed. The sample must be a composite of 6 pieces to be taken from beneath each sample face (to a maximum of 2 cm from the surface). Extraction shall be performed for 1 hour in an ultrasonic bath at room temperature. The extracting agent shall be a mixture composed as it follows: 1750 ml methanol + 300 ml acetic acid + 250 ml buffer (pH 4.5). The buffer shall be a solution of 164 g of sodium acetate in 200 ml of water and 165 ml acetic acid, to be diluted with water to a volume of 2000 ml. After extraction the alkyl tin species shall be derivatized by adding sodium tetraethylborate solution in THF. The derivative shall be extracted with n-hexane and the sample shall be submitted to a second extraction procedure. Both hexane extracts shall be combined and further used to determine the organotin compounds by gas chromatography with mass selective detection in SIM modus.

Criterion 2(b)

(b) Emission of Volatile Organic Compounds (VOCs)

The room concentrations of the substances reported below, calculated through the test chamber method, shall not exceed the following values after a period of 30 hours.

Substance (CAS number)	Limit value (mg/m ³)
Formaldehyde (50-00-0)	0.0050
Toulene (108-88-3)	0.10
Styrene (100-42-5)	0.0050
Each CMR substances class 1a or 1b	0.0050
Sum of all CMR substances class 1a or 1b*	0.040
Aromatic hydrocarbons	0.50
VOCs (total)	0.50

* According to EU legislation:

http://www.dguv.de/ifa/de/fac/kmr/kmr_neue_bezeichnungen.pdf

Assessment and verification: The applicant shall provide a test report presenting the results of the test described in the CertiPUR Technical Requirements for the CertiPUR label, available at http://www.europur.com/uploads/DocumentsLibrary/documents/CertiPUR_Technical_Paper_11.05.2011.pdf. The sampling procedure outlined there will be followed. The foam sample is placed on the bottom of an emission test chamber and is conditioned for 3 days at 23°C, applying an air exchange rate n of 0.5 per hour and a chamber loading L of 0.4 m²/m³ (= total exposed surface of sample in relation to chamber dimensions without sealing edges and back) in accordance with EN ISO 16000-9 and EN ISO 16000-11. Sampling will be done 72 ± 2 h after loading of the chamber during 1 hour on Tenax TA and DNPH cartridges for respectively VOC and formaldehyde analysis. The emissions of volatile organic compounds (VOC) are being trapped on Tenax TA sorbent tubes and subsequently analysed by means of thermo-desorption-GC-MS in accordance to EN ISO 16000-6. Results are semi-quantitatively expressed as toluene equivalents. All specified individual components are reported from a concentration limit ≥ 1 µg/m³. TVOC value is the sum of all components with a concentration

$\geq 1\mu\text{g}/\text{m}^3$ and eluting within the retention time window from n-hexane (C6) to n-hexadecane (C16) inclusive. The sum of all CMR substances class 1a & 1b is the sum of all these substances with a concentration $\geq 1\mu\text{g}/\text{m}^3$. In case the test results exceed the standard limits, substance specific quantification needs to be performed. Formaldehyde can be determined by collection of the sampled air onto DNPH cartridge and subsequent analysis by HPLC/UV in accordance to EN ISO 16000-3.

Note:

- Chamber volume has to be 0.5 or 1 m³.
- 1 sample (25 cm x 20 cm x 15 cm) is used in a test chamber of 0.5 m³ standing vertically on one 20 cm x 15 cm side.
- 2 samples (25 cm x 20 cm x 15 cm) are used in a 1 m³ test chamber standing vertically on one 20 cm x 15 cm side; in this case both samples are placed in the test chamber with 15 cm distance in between.

Criterion 2(c)

(c) Dyes and pigments

Criterion 5(e) shall be respected

Assessment and verification: *The applicant shall provide a declaration of compliance with this criterion, together with supporting documentation.*

Criterion 2(d)

(d) Blowing agents

Halogenated organic compounds shall not be used as blowing agents or as auxiliary blowing agents.

Assessment and verification: The applicant shall provide a declaration that these blowing agents have not been used.

Description of the criterion and rationale

Article 6.3.f of the EU Ecolabel Regulation states that the EU Ecolabel should seek to align with other ecolabels to enhance synergies between schemes. Criteria on PUR foam from other labelling schemes have been reviewed extensively. The CertiPUR label^a was considered the main reference with which to align both requirements on restricted substances and the related assessment and verification procedures.

The following changes have been proposed based on the euro CertiPUR Label:

1. Introduction of a criterion on biocides, whose legal reference had to be aligned with the criterion on biocides for the whole mattress (see criterion 8).
2. Reducing the allowable concentrations of Arsenic and Lead from 0.5ppm to 0.2ppm, and the addition of selenium at a maximum concentration of 0.5 ppm.
3. introduction of a limit of 0.7% by weight for the total chlorine content in the isocyanates used to produce the PUR

^a http://www.europur.com/uploads/DocumentsLibrary/documents/CertiPUR_Technical_Paper_11.05.2011.pdf

4. Introducing prescriptions on phthalate plasticizers:

- the intentional addition of phthalates is prohibited
- residual content of DINP, DNOP, DEHP, DIDP, BBP, DIBP < 0.01 % w/w)

5. Introduction of limits on the content of precursors for TDI and MDI:

- 4,4'-diaminodiphenylmethane (101-77-9) < 5.0ppm
- 2,4-toluenediamine (95-80-7) < 5.0 ppm

6. Addition of Tetra-organic tin compounds to banned tin organic compounds and further alignment with the verification requirement of the CertiPUR standard.

7. Introduction of a list of banned substances:

- Chlorinated or brominated dioxines or furans
- Chlorinated hydrocarbons (1,1,2,2-Tetrachloroethane, Pentachloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethylene)
- Chlorinated phenols (PCP, TeCP) – 87-86-5
- Hexachlorocyclohexane - 58-89-9
- Monomethyldibromo – Diphenylmethane - 99688-47-8
- Monomethyldichloro-Diphenylmethane -81161-70-8
- Nitrites
- Polybrominated Biphenyls (PBB) - 59536-65-1
- Pentabromodiphenyl Ether (PeBDE)- 32534-81-9
- Octabromodiphenyl Ether (OBDE) - 32536-52-0
- Polychlorinated Biphenyls (PCB) - 1336-36-3
- Polychlorinated Terphenyls (PCT) - 61788-33-8
- Tri-(2,3-dibromo-propyl)-phosphate (TRIS) - 126-72-7
- Trimethylphosphate- 512-56-1
- Tris-(aziridinyl)-phosphin oxide (TEPA) - 5455-55-1
- Tris(2-chloroethyl)-phosphate (TCEP) -115-96-8
- Dimethyl methylphosphonate (DMMP) - 756-79-6

8. Introduction of limits on individual VOC emissions, specifically;

- Toluene <0.1 mg/m³
- Styrene < 0.005 mg/m³
- Each CMR substance class 1a or 1b < 0.005 mg/m³
- Sum of all CMR substances class 1a and 1b* < 0.04mg/m³
- Aromatic hydrocarbons < 0.5 mg/m³
- Total VOCs < 0.5 mg/m³

9. Alignment of verification procedures to the CertiPUR Label. Testing procedures for heavy metals and for nitrosamines refer to euroLATEX ECO-Standard and to Commission Decision 2009/598/EC because these are not provided within the CertiPUR Label.

The Commission Decision 2009/598/EC contains similar requirements on dyes and pigments for latex foam, PUR foam and textiles. While requirements on dyes and pigments are of main pertinence for textiles, they do not seem the most important issue for foams (they are not considered within the related industry standards) but they are kept within the revised criterion for PUR foam. The approach followed within the current revision was to revise this set of requirement for textiles and to link to the corresponding criterion 5(e).

Finally, no modification seems needed for the criterion on blowing agents.

Cost Benefit Analysis:

The changes made do not substantially alter the criteria, but simply update limits on emissions and substances concentrations to reflect current practice. Some additional restrictions have been introduced, however, because of their presence in other relevant labelling schemes, they should not create complications to producers of mattresses and their suppliers.

Test Procedures and Economic Burdens:

Testing procedures have been aligned as much as possible to those of the euroLATEX ECO-Standard. However, this action is not expected to increase prohibitively the economic burdens of testing. Additional declarations of non-use will be required from some suppliers and manufacturers. These should not present significant burdens on applicants assuming the information from suppliers is available.

Follow-up

Industry appreciated this initiative. Some corrections were necessary to align more coherently with their respective standards.

Criterion 3. Spring and wires

Heading

Criterion 3. Wire and springs

Note: The following requirements need to be met only if wire and springs contribute to more than 5% of the total weight of the mattress.

Criterion 3(a)

(a) Degreasing

If degreasing and/or cleaning of wire and/or springs is carried out with organic solvents, use shall be made of a closed cleaning/degreasing system.

Assessment and verification: The applicant shall provide a corresponding declaration.

Criterion 3(b)

(b) Galvanisation

The surface of springs shall not be covered with a galvanic metallic layer.

Assessment and verification: The applicant shall provide a corresponding declaration.

Description of the criterion and rationale

No modification was applied to the requirements of the Commission Decision 2009/598/EC for wire and springs.

Criterion 4. Coconut fibres

Heading and text

Criterion 4. Coconut fibres

Note: The following requirement needs to be met only if coconut fibre contribute to more than 5% of the total weight of the mattress.

If coconut fibre material is rubberised, it shall comply with the criteria applicable to latex foam.

Assessment and verification: The applicant shall either provide a declaration that rubberised coconut fibres are not used, or provide the test reports required in point 1 for latex foam.

Description of the criterion and rationale

No modification was applied to the requirements of the Commission Decision 2009/598/EC for coconut fibres.

Criterion 5. Textiles (fabrics and fibres used as ticking, padding and removeable covers)

Heading

Criterion 5. Textiles (fabrics and fibres used as ticking, padding and removeable covers)

Ticking materials must respect the following sub-criteria:

5(a) on hazardous substances,

5(b) on auxiliary chemicals,

5(c) on detergents, fabric softeners and complexing agents,

5(d) on bleaching agents,

5(e) on dyes and pigments,

5(f) on wastewater discharges from dyeing processes,

5(g) on wastewater discharges from wet processing, 5(h) on durability,

5(i) on dimensional change.

Padding materials made of fibres must respect criteria 5(a), 5(d), 5(e) 5(f). In addition to these, criteria 5(b) and 5(g) must also be respected if wool is used as padding material.

Criterion 5(a)

(a) General requirements on hazardous substances (including flame retardants, biocides and plasticizers)

Criteria 7 (flame retardants), 8 (biocides), 9 (plasticizers), 10 (hazardous substances and mixtures) shall be respected.

Assessment and verification: The applicant shall provide a declaration of compliance with this criterion, together with supporting documentation.

Criterion 5(b)

(b) Auxiliary chemicals

The following substances shall not be used in any textile preparations or formulations and are subject to limit values for the presence of substances on the final product:

- Alkylphenols:
 - Nonylphenol, mixed isomers 25154-52-3
 - 4-Nonylphenol 104-40-5
 - 4-Nonylphenol, branched 84852-15-3
 - Octylphenol 27193-28-8
 - 4-Octylphenol 1806-26-4
 - 4-tert-Octylphenol 140-66-9
 - Alkylphenoethoxylates (APEOs) and their derivatives
 - Polyoxyethylated octyl phenol 9002-93-1

- Polyoxyethylated nonyl phenol 9016-45-9
- Polyoxyethylated p-nonyl phenol 26027-38-3

• ~~linear alkylbenzene sulfonates (LAS),~~

- bis(hydrogenated tallow alkyl) dimethyl ammonium chloride (DTDMAC),
- distearyl dimethyl ammonium chloride (DSDMAC),
- di(hardened tallow) dimethyl ammonium chloride (DHTDMAC),
- ethylene diamine tetra acetate (EDTA),
- diethylene triamine penta acetate (DTPA)
- 4-(1,1,3,3-tetramethylbutyl)phenol
- 1-Methyl-2-pyrrolidone
- Nitrilotriacetic acid (NTA)

Assessment and verification: The applicant shall provide a declaration of non-use. Oeko-tex 100 shall be accepted as demonstrating compliance with non-use of alkylphenols.

Criterion 5(c)

(c) Detergents, fabric softeners and complexing agents

At each dyeing, printing and finishing stage in production of the mattress ticking, at least 95 % by weight of fabric softeners, complexing agents and detergents by weight shall be readily biodegradable under aerobic conditions.

All non-ionic and cationic surfactants present in detergents and fabrics softeners must also be readily biodegradable under anaerobic conditions.

Assessment and verification: The applicant shall provide appropriate documentation, safety data sheets, test reports and/or declarations, indicating the test methods and results as above, and showing compliance with this criterion for all detergents, fabric softeners and complexing agents used.

The Detergents Ingredients Database shall be used as the reference point for verifying the ready biodegradability of detergents, fabric softeners and complexing agents. The DID can be consulted here:

http://ec.europa.eu/environment/ecolabel/documents/did_list/didlist_part_a_en.pdf

Criterion 5(d)

(d) Bleaching agents

Chlorine agents shall not be used for the bleaching of any yarns, fabrics or end-products with the exception of man-made cellulose fibres.

For man-made cellulose fibres, the level of organically bound halogens (OX) in the fibres shall not exceed 150 ppm.

Assessment and verification: The applicant shall provide a declaration of non-use of chlorinated bleaching agents. For man-made cellulose fibres, the applicant shall provide a test report, using the

following test method: EN ISO 11480.97 (controlled combustion and microcoulometry).

Criterion 5(e)

(e) Dyes and pigments

The following sub-criteria apply to the use of dyes used on the mattress ticking and cover. Additional requirements are also contained within derogation conditions for dyes under sub-criteria 10 on hazardous substances. These conditions relate to the handling of dyes in the dye house and colour removal from wastewater.

Group of substances	Criterion	Assessment and verification																														
i. Chrome mordant dyes	Chrome mordant dyes shall not be used	A																														
ii. Metal complex dyes	<p>Metal complex dyes based on cadmium, mercury and lead shall not be used.</p> <p>Metal complex dyes based on copper, chromium and nickel shall only be permitted for dyeing wool, polyamide or blends of these fibres with man-made cellulose fibres (e.g. viscose, modal, lyocell, cupro).</p>	B																														
iii. Azo dyes	<p>Azo dyes shall not be used that may cleave to one of the following aromatic amines. An indicative list of dyes is provided for the purpose of self-declaration (see annex x)</p> <table border="1" data-bbox="408 1227 1142 1989"> <thead> <tr> <th data-bbox="408 1227 954 1272">Aryl amine</th> <th data-bbox="975 1227 1142 1272">CAS number</th> </tr> </thead> <tbody> <tr> <td data-bbox="408 1279 954 1317">4-aminodiphenyl</td> <td data-bbox="975 1279 1142 1317">92-67-1</td> </tr> <tr> <td data-bbox="408 1323 954 1361">Benzidine</td> <td data-bbox="975 1323 1142 1361">92-87-5</td> </tr> <tr> <td data-bbox="408 1368 954 1406">4-chloro-o-toluidine</td> <td data-bbox="975 1368 1142 1406">95-69-2</td> </tr> <tr> <td data-bbox="408 1413 954 1451">2-naphtylamine</td> <td data-bbox="975 1413 1142 1451">91-59-8</td> </tr> <tr> <td data-bbox="408 1458 954 1496">o-amino-azotoluene</td> <td data-bbox="975 1458 1142 1496">97-56-3</td> </tr> <tr> <td data-bbox="408 1503 954 1541">2-amino-4-nitrotoluene</td> <td data-bbox="975 1503 1142 1541">99-55-8</td> </tr> <tr> <td data-bbox="408 1547 954 1585">p-chloroaniline</td> <td data-bbox="975 1547 1142 1585">106-47-8</td> </tr> <tr> <td data-bbox="408 1592 954 1630">2,4-diaminoanisol</td> <td data-bbox="975 1592 1142 1630">615-05-4</td> </tr> <tr> <td data-bbox="408 1637 954 1675">4,4'-diaminodiphenylmethane</td> <td data-bbox="975 1637 1142 1675">101-77-9</td> </tr> <tr> <td data-bbox="408 1682 954 1720">3,3'-dichlorobenzidine</td> <td data-bbox="975 1682 1142 1720">91-94-1</td> </tr> <tr> <td data-bbox="408 1727 954 1765">3,3'-dimethoxybenzidine</td> <td data-bbox="975 1727 1142 1765">119-90-4</td> </tr> <tr> <td data-bbox="408 1771 954 1809">3,3'-dimethylbenzidine</td> <td data-bbox="975 1771 1142 1809">119-93-7</td> </tr> <tr> <td data-bbox="408 1816 954 1854">3,3'-dimethyl-4,4'-diaminodiphenylmethane</td> <td data-bbox="975 1816 1142 1854">838-88-0</td> </tr> <tr> <td data-bbox="408 1861 954 1899">p-cresidine</td> <td data-bbox="975 1861 1142 1899">120-71-8</td> </tr> </tbody> </table>	Aryl amine	CAS number	4-aminodiphenyl	92-67-1	Benzidine	92-87-5	4-chloro-o-toluidine	95-69-2	2-naphtylamine	91-59-8	o-amino-azotoluene	97-56-3	2-amino-4-nitrotoluene	99-55-8	p-chloroaniline	106-47-8	2,4-diaminoanisol	615-05-4	4,4'-diaminodiphenylmethane	101-77-9	3,3'-dichlorobenzidine	91-94-1	3,3'-dimethoxybenzidine	119-90-4	3,3'-dimethylbenzidine	119-93-7	3,3'-dimethyl-4,4'-diaminodiphenylmethane	838-88-0	p-cresidine	120-71-8	C
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	C.I. Disperse Red 1	2872-52-8		
	C.I. Disperse Red 11	2872-48-2		
	C.I. Disperse Red 17	3179-89-3		
	C.I. Disperse Yellow 1	119-15-3		
	C.I. Disperse Yellow 3	2832-40-8		
	C.I. Disperse Yellow 9	6373-73-5		
	C.I. Disperse Yellow 39	12236-29-2		
	C.I. Disperse Yellow 49	54824-37-2		
vi. Extractable heavy metals in the final fabric	<p>The following limit values apply to mattress covers intended for babies and children under 3 years old:</p> <p>Antimony (Sb) 0.2 Arsenic (As) 0.1 Cadmium (Cd) Chromium (Cr) 1.0 - Textiles dyed with metal complex dyes 0.5 - All other textiles 1.0 Cobalt (Co) 25.0 Copper (Cu) 0.2 Lead (Pb) Nickel (Ni) 1.0 Textiles dyed with metal complex dyes 0.5 All other textiles 0.02 Mercury (Hg)</p> <p>The following limit values apply to all other mattress covers:</p> <p>Antimony (Sb) 1.0 Arsenic (As) 0.1 Cadmium (Cd) Chromium (Cr) 2.0 - Textiles dyed with metal complex dyes 1.0 - All other textiles Cobalt (Co) 4.0 - Textiles dyed with metal complex dyes 1.0 - All other textiles 50.0 Copper (Cu) 1.0 Lead (Pb) 1.0 Nickel (Ni) 0.02 Mercury (Hg)</p>		All mg/kg 30.0	D
Assessment and verification:				

- A. The applicant shall provide a declaration of non use
- B. The applicant shall provide a declaration of non-use.
- C. The applicant shall provide a declaration of non-use of dyes that may cleave to these amines. Should this declaration be subject to verification the following standard shall be used: BS EN 14362-1 and 2. (Note: false positives may be possible with respect to the presence of 4-aminoazobenzene, and confirmation is therefore recommended)
- D. The applicant shall provide final product testing as verification for the limit values. The tests used should be 1) Extraction: DIN EN ISO 105-E04-2009 (Acid sweat solution) and 2) Detection: GC-ICP-MS.

For sub-criteria iii/iv/v/vi Oeko-tex 100 certification shall be accepted as demonstrating compliance.

Criterion 5(f)

(f) Wastewater discharges from wet processing

Wastewater from wet-processing sites shall be subject to the following requirements which apply to discharges to sewer prior to municipal wastewater treatment and to final discharges to the environment. All wet processing sites must comply with the requirement for final discharges which must be verified as an annual average. .

Receiving body	Criteria requirement
Discharges to sewer	85% reduction in COD from untreated effluent.
Discharges to the environment	20 g/kg COD

Assessment and verification: The applicant shall provide detailed documentation and test reports, using EN ISO 6060, showing compliance with this criterion, together with a declaration of compliance.

If the effluent is treated on site and discharged directly to surface waters, it shall also have a pH between 6 and 9 (unless the pH of the receiving water is outside this range) and a temperature of less than 40°C (unless the temperature of the receiving water is above this value).

Criterion 5(g)

(g) Durability (Mechanical resistance)

Mattress ticking must achieve satisfactory mechanical properties, which are defined by the following testing standards:

Property	Requirement	Test method
Tear strength	Woven fabrics \geq 15 N	EN ISO 13937-2 (woven fabrics)
	Nonwoven fabrics \geq 20 N	EN ISO 9073-4 (nonwoven)
	Knitted fabrics: not applicable	

Seam slippage	Woven fabrics \geq 16 picks: maximum 6 mm Woven fabrics < 16 picks: maximum 10 mm Knitted fabrics and nonwovens: not applicable	EN ISO 13936-2 (under a load of 60 N for all woven fabrics)
Tensile strength	Woven fabrics \geq 15 N Knitted fabrics and nonwovens: not applicable	EN ISO 13934-1

Assessment and verification: The applicant shall provide reports describing the results of the tests performed according to EN ISO 13937-2 or EN ISO 9073-4 for tear strength, EN ISO 13936-2 (under a load of 60 N) for seam slippage and EN ISO 13934-1 for tensile strength.

Criterion 5(i)

(h) Dimensional change

The dimensional changes after washing and drying shall not exceed +/- 2% for mattress ticking or additional covers that are washable and removable.

This criterion does not apply to:

- fabrics that are not removable and washable.
- products clearly labelled “dry clean only” or equivalent (insofar as it is normal practice for such products to be so labelled).

Assessment and verification: For mattress covers to be cleaned in a domestic washing machine applicants shall provide test reports describing the results of the tests performed according to the standards EN ISO 6330, EN ISO 5077 and as follows: 3 washes at temperatures as indicated on the product, with tumble drying after each washing cycle unless other drying procedures are indicated on the product. For mattress covers that are to be washed in industrial laundries ISO 15797 shall be used at a minimum of 75 °C or as indicated on the product.

Description of the criterion and rationale

Textiles appear to be a significant source of impacts for mattress systems. However, considering the limited uptake of the criteria by industry, it is generally considered that too strict a prescription would pose additional burdens to manufacturers and it would prevent them from applying for the EU Ecolabel. This would also not easily reflect the performance of the best 10-20% of products on the market.

The proposed revision of requirements on textiles was made on the following basis:

- The need of simplifying criteria for textiles (an apparent bottleneck according some industry stakeholder);
- The need of making a clearer differentiation between padding and ticking (i.e. filling and cover materials, respectively)

- The need specify criteria according to their relevance to the production processes for padding and ticking, and with reference also to relevant fitness for use standard
- The need to align with the ongoing revision of the EU Ecolabel criteria for textiles and with other labels such as the Nordic Swan and Oeko-tex 100, as outlined in part of Article 6.3.f of the EU Ecolabel

A simple set of criteria was drafted which takes into account the current revision of the EU Ecolabel criteria for textiles and elements of relevance from the Nordic Swan for furniture^a. The criteria mainly focus on hazardous substances. Elements of secondary importance for bed mattresses (e.g. colour fastness, printing) have been excluded from the criteria proposal.

The following rearrangement and additions are proposed for the revised textiles criteria, with the proposed wording provided below. Elements highlighted in yellow could be influenced by the parallel revision of EU Ecolabel criteria for textiles. It should also be noted that some of the criteria refer to both filling materials (padding) and cover (ticking) of the mattresses, while others apply only to the cover.

Requirement	Comments/Recommendations	Scope
5(a) Hazardous substances	An introductory criterion 5(a) on "general requirement on hazardous substances would refer to specific prescriptions on hazardous substances (including flame retardants, biocides and plasticizers)".	Cover; Padding
5(b) Auxiliary chemicals	This would form a criterion 5(b) and should be updated in accordance with the current revision of the EU Ecolabel criteria for textiles.	Cover; Wool for filling
5(c) Detergent, fabric softeners and complexing agents	This would form a criterion 5(c) and should be updated in accordance with the current revision of the EU Ecolabel criteria for textiles.	Cover
5(d) Bleaching agents	This would form a criterion 5(d) and should be updated in accordance with the current revision of the EU Ecolabel criteria for textiles.	Cover; Filling ^a
5(e) Dyes and pigments	Criteria on dyeing should be aligned with the current revision of the EU Ecolabel criteria for textiles. Criteria could be merged into a single prescription 5(e) on "dyeing and pigments". In accordance with the Blue Angel criteria for mattresses, also the restriction of metal complex dyes based on cadmium, mercury, lead would be added. The list of restricted amines and sensitising dyers should be updated in order to harmonise with Oekotex 100 and MAK Category 2 (Germany). This would lead to the inclusion of: - 4,4'-methylene-bis-(2-chloroaniline) (101-14-4),	Cover; Filling ^a

^a <http://www.svanen.se/en/Svanenmarka/Kriterier/?p=2>

Requirement	Comments/Recommendations	Scope
	- 4-aminoazobenzene (60-09-03) - Disperse Blue 3 and Disperse Yellow 3	
5(f) Wastewater discharges from wet processing	In accordance with the Nordic Swan criteria for furniture, a new criterion 5(f) would be added which limits COD emissions from wet-processing. This should be aligned with the current revision of the EU Ecolabel criteria for textiles.	Cover; Wool for filling
5(g) Durability	Resistance to abrasion is prescribed within the current Nordic Swan criteria for furniture, while a new criterion on the durability of functional treatments (such as flame retardants) could be proposed for introduction in line with the EU Ecolabel criteria for textiles. However, at this stage, it could be more appropriate to include only requirements on mechanical resistance as outlined in the existing technical standard BS EN 14976 "Textiles – Mattress ticking – Specifications and test methods".	Cover
5(h) Dimensional change	A new criterion 5(i) on dimensional changes during washing and drying could be added, in accordance with the Nordic Swan criteria for furniture and the EU Ecolabel criteria for textiles. The proposed criterion also satisfies the existing technical standard EN 14976 "Textiles – Mattress ticking – Specifications and test methods".	Cover, only if removable
Colour fastness to perspiration (acid, alkaline)	Not considered an issue of relevance here. This requirement has been removed.	Cover
Colour fastness to web rubbing	Not considered an issue of relevance here. This requirement has been removed.	Cover
Colour fastness to dry rubbing	Not considered an issue of relevance here. This requirement has been removed.	Cover
a. The relevance of this area for the filling materials is uncertain. However, unless demonstrated that these substances are not used in filling materials, it is recommended to have such restrictions both for cover and filling.		

Cost Benefit Analysis:

The costs associated with these change appears marginal and are related to align the criterion with the requirements of other labels.

Test Procedures and Economic Burdens:

Assessment and verification procedures have been identified within the changes outlined above. In comparison with the current revision of the EU Ecolabel criteria for textiles, a simpler approach is

presented here in some cases. This is to avoid to pose additional burdens to manufacturers which could prevent them from applying.

Follow-up

A set of revised criteria was drafted for textiles which:

- take into account for the current revision of the EU Ecolabel criteria for textiles,
- make a differentiation between padding and ticking,
- strive to match with the apparent need of simplification requested by industry stakeholders.

Criteria mainly focus on hazardous substances. Elements of secondary importance for bed mattresses (e.g. colour fastness) have not been considered within this revision.

In accordance with the existing EU Ecolabel criteria for textiles and in alignment with the ongoing revision, additional criteria proposals could include prescriptions on:

1. Sourcing of cotton and other cellulosic seed fibres in order to avoid the use and presence of pesticides
2. Scouring of wool and keratin fibres
3. Sustainable certified sourcing of man-made cellulose fibres and emission limits for the production process
4. Sourcing of recycled polyester (which seems feasible for mattress systems^{a,b,c,d}), VOCs emissions during the production process and antimony content.
5. Prescriptions on the production of polypropylene.

However, these issues have not been discussed before for this product group and, before they are implemented, it would be necessary to understand if they would create undesired complications for a product group which must attract the interest of producers.

Another two criteria which are not included in the revision proposal but that could be considered later are:

1. Resistance to abrasion

External textiles must have abrasive resistance corresponding to the rupture of the maximum of two threads at a minimum of 20,000 wear revolutions for domestic use and 40,000 for public use.

Assessment and verification: The applicant shall provide test reports following the standard EN ISO 12947 (abrasion).

2. Durability of flame retardancy

Finishes, treatments and additives that impact flame retardant properties to the mattress ticking should be durable. The mattress ticking shall demonstrate the following levels of durability:

- Removeable and washable covers must retain xx% of their functionality after 50 domestic wash cycles at 40°C.
- Non-washable covers must retain xx% of their functionality after a soak test.

^a <http://bedtimesmagazine.com/recycling-mattress-components/>

^b <http://www.indratech-us.com/mattresses.html>

^c <http://www.socialstudentmattress.com/pages/sleep-school-10>

^d <http://steplight.com.au/2012/08/15/mattress-recycling-and-low-cost-beds-mattresses/>

Textile fibres, fabrics and membranes that are inherently flame retardancy are exempt from these requirements.

Assessment and verification: The applicant shall provide reports from tests carried out according to the following standards, as appropriate to the product:

- For domestic wash cycles: ISO 6330:2001 (+ 2009 A1)
- For non-removal textiles: **BS 5651:1989**

For inherent flame retardant fabrics applicants shall provide test reports demonstrating a high level of comparable performance with alternatives which may be applied as finishes.

DRAFT

Criterion 6. Glues and adhesives

Heading and text

Criterion 6. Glues and adhesives

Glues containing organic solvents shall not be used. **Glues and adhesive used for assembling shall also respect Criterion 10 on hazardous substances.**

Assessment and verification: The applicant shall provide a declaration that glues and adhesives used comply with this criterion, together with supporting documentation.

Description of the criterion and rationale

The Commission Decision 2009/598/EC contains a prescription of glues which prohibit the use of glues based on organic solvents and carrying some risk phrases / hazard statements. The new criterion 10 will restrict hazardous substances based on their classification with hazard statements / risk phrases. In order to maintain the same restriction on glues, reference to criterion 10 is made and hazard statements are derogated there for glues in order to prohibit the use of glues carrying the following hazard statements: H351, H350, H340, H350i, H360F, H360D, H361f, H361d H360FD, H361fd, H360Fd, H360Df, H331, H330, H311, H301, H310, H300, H370, H372.

Cost Benefit Analysis:

There should be no additional costs associated with this requirement since the only modification concerns the design of the criterion.

Test Procedures and Economic Burdens:

There should be no additional costs associated with this requirement since the only modification concerns the design of the criterion.

Follow-up

There should be no problem associated with this revised requirement since the only modification concerns the design of the criterion.

Criterion 7. Flame retardants

Heading and text

Criterion 7. Flame retardants

Criterion 10 on hazardous substances shall be respected. In addition, the following flame retardants shall not be added intentionally to the product or to any homogeneous part of it:

Name	CAS number	Acronym
Decabromodiphenylether	1163-19-5	decaBDE
Hexabromocyclododecane	25637-99-4	HBCDD
Octabromodiphenylether	32536-52-0	octaBDE
Pentabromodiphenylether	32534-81-9	pentaBDE
Polybrominated biphenyls	59536-65-1	PBB
Short chain chlorinated paraffins (C10-C13)	85535-84-8	SCCP
Tri-(2,3-dibromopropyl)-phosphate	126-72-7	TRIS
Tris(2-chloroethyl)phosphate	115-96-8	TCEP
Tris-(aziridinyl)-phosphin oxide	545-55-1	TEPA

Assessment and verification: The applicant shall provide a declaration supported by declarations from manufacturers of substances, as appropriate, confirming that the listed substances have not been included in the product. A list of substances added to enhance the flame retarding properties of the mattress is to be provided with concentrations and related H statements / R phrases. **Oeko-tex 100 certification shall be accepted as demonstrating compliance.**

Description of the criterion and rationale

Two main factors influence the update of this criterion. Firstly it was necessary to remove the differentiation between additive and non-additive flame retardants as this was impeding manufacturers from applying. Secondly, the horizontal criteria for hazardous substances extend the list of risk phrases which were included in the existing criterion. In addition, specific exclusion of substances was required because flame retardants are substances for which there is general concern over. The list of banned substances mirror that used by the Oeko-Tex 100 scheme which adopts this approach.^a This should include all flame retardants substances which are listed in the Candidate List of SVHC and in the List of substance restricted according to the REACH Regulation. Gathering further information on the flame retardants used in the mattresses could provide evidence for further revision in the future.

The existing criteria for flame retardants will be replaced with a list of specifically restricted flame retardant substances. In addition, the criterion on hazardous substances will place overarching restrictions on substances based on their inherent hazard properties. Where substances are added

^a http://www.oeko-tex.com/OekoTex100_PUBLIC/content1.asp?area=hauptmenue&site=grenzwerte&cls=02#10

to improve the flame retarding properties of the mattress, they should be declared together with the hazard statements associated.

Cost Benefit Analysis:

These substances are already banned, indirectly, through the new criteria on hazardous substances. However, the concerns over flame retardants, biocides and plasticizers led to include them in separate criteria. There should be no additional costs associated with this criterion over those incurred already through the new horizontal ban. Declaring the hazardous substances included in the product requires gathering data from suppliers. This information should be readily available from suppliers.

Test Procedures and Economic Burdens:

No test procedures are foreseen as suppliers should be aware of (or can identify) which substances are included in their materials (e.g. foams, padding, fabrics). Limiting the use of these substances should not have an impact on costs for manufacturers being these listed in the Candidate List of SVHC or restricted according to the REACH Regulation. However further feedback would be required to verify and quantify the extent of this.

Follow-up

The proposal is perceived as a good compromise and it was included in the final draft of revised criteria.

Criterion 8. Biocides

Heading and text

Criterion 8. Biocides

Criterion 10 on hazardous substances shall be respected. In addition, the following biocides shall not be added intentionally to the product or to any homogeneous part of it:

1. Biocidal products that do not contain biocidal active substances authorised under Biocides Directive 98/8/EC and Biocides Regulation (EC) No 528/2012. Applicants should consult the following listing of authorised biocides:

http://ec.europa.eu/environment/biocides/annexi_and_ia.htm

2. Chlorophenols (their salts and esters), polychlorinated biphenyl (PCB), organo-tin compounds and diethyl fumarate (DMFu).

3. Biocides included in the following list:

Name	CAS number	Name	CAS number
2,4,5-T	93-76-5	Fenvalerate	51630-58-1
2,4-D	94-75-7	Heptachlor	76-44-8
Azinophosmethyl	86-50-0	Heptachloroepoxide	1024-57-3
Azinophosethyl	2642-71-9	Hexachlorobenzene	118-74-1
Aldrine	309-00-2	Hexachlorcyclohexane, α -	319-84-6
Bromophos-ethyl	4824-78-6	Hexachlorcyclohexane, β -	319-85-7
Captafol	2425-06-1	Hexachlorcyclohexane, δ -	319-86-8
Carbaryl	63-25-2	Isodrine 6	465-73-
Chlordane	57-74-9	Kelevane 1	4234-79-
Chlordimeform	6164-98-3	Kepone	143-50-0
Chlorfenvinphos	470-90-6	Lindane	58-89-9
Coumaphos	56-72-4	Malathion	121-75-5
Cyfluthrin	68359-37-5	MCPA	94-74-6
Cyhalothrin	9 1465-08-6	MCPB	94-81-5
Cypermethrin	52315-07-8	Mecoprop	93-65-2
DEF	78-48-8	Metamidophos	10265-92-6
Deltamethrin	52918-63-5	Methoxychlor	72-43-5
DDD	53-19-0, 72-54-8	Mirex	2385-85-5
DDE	3424-82-6, 72-55-9,	Monocrotophos	6923-22-4
DDT	50-29-3, 789-02-6	Parathion	56-38-2
Diazinon	333-41-5	Parathion-methyl	298-00-0

Dichlorprop	120-36-2	Phosdrin/Mevinphos	7786-34-7
Dicrotophos	141-66-2	Perthane	72-56-0
Dieldrine	60-57-1	Propethamphos	31218-83-4
Dimethoate	60-51-5	Profenophos	41198-08-7
Dinoseb and salts	88-85-7	Quinalphos	13593-03-8
Endosulfan, α -	959-98-8	Strobane	8001-50-1
Endosulfan, β -	33213-65-9	Telodrine	297-78-9
Endrine	72-20-8	Toxaphene	8001-35-2
Esfenvalerate	66230-04-4	Trifluralin	1582-09-8

Assessment and verification: The applicant shall provide a declaration supported by declarations from manufacturers of substances, as appropriate, confirming that the listed substances have not been included in the product. A list of biocidal products added is to be provided with concentrations and related H statements / R phrases. Additional verification tests may be required:

- for Chlorophenols (their salts and esters), polychlorinated biphenyl (PCB), organo-tin compounds by derivatisation with acetic anhydride, determination by capillary gas-liquid chromatography with an electron capture detector (sum limit value: 0.05 mg/kg).
- for diemthyl fumarate (DMFu) by solvent extraction and gas chromatography–mass spectrometry (limit value: 0.1 mg/kg).

Oeko-tex 100 certification shall be accepted as demonstrating compliance.

Description of the criterion and rationale

Criterion 10 will restrict substances based on their hazard properties. However, biocides are substances for which there is wide concern over, and explicit exclusion of substances would be welcome. This could be pursued by merging criteria 6.1 and 10 of the Commission Decision 2009/598/EC into one single prescription. This would be similar to the approach followed in the current revision of textiles. Reference to an update piece of legislation is also needed since the Biocides Directive 98/8/EC has been replaced by the Biocides Regulation (EC) No 528/2012. An additional ban for DMFu should be even included in order to reflect Commission Regulation (EC) No 412/2012 and to be better aligned with the current revision of the EU Ecolabel for textiles. The list of banned substances could also include those mentioned within the Oeko-Tex 100 scheme.^a The existing criteria for biocides have been merged and updated as described above (elements highlighted in yellow could be influenced by the parallel revision of EU Ecolabel criteria for textiles).

Cost Benefit Analysis:

These substances are already banned, indirectly, through the new criteria on hazardous substances. However, the concerns over flame retardants, biocides and plasticizers led to include them in separate criteria. There should be no additional costs associated with this criterion over those incurred already through the new horizontal ban. Declaring the hazardous substances included in

^a http://www.oeko-tex.com/OekoTex100_PUBLIC/content1.asp?area=hauptmenue&site=grenzwerte&cls=02#10

the product requires gathering data from suppliers. This information should be readily available from suppliers.

Test Procedures and Economic Burdens:

No test procedures are foreseen as suppliers should be aware of (or can identify) which substances are included in their materials (e.g. foams, padding, fabrics).. Limiting the use of certain substances may impact on costs to manufacturers, however further feedback would be required to quantify the extent of this.

Follow-up

The passage from a "white list" approach to a "black list approach" (based on the example of Oekotex 100) was originally considered for the revision. However, it was considered more appropriate to maintain a reference also to the existing prescriptions on biocides, extended to all the components of the mattress, and to include an additional ban for DMFu, which would allow the criteria to be better aligned with the current revision of the EU Ecolabel for textiles.

Criterion 9. Plasticizers

Heading and text

Criterion 9. Plasticizers

Criterion 10 on hazardous substances shall be respected. In addition, the following plasticizers shall not be added intentionally to the product or to any homogeneous part of it:

Name	CAS number	Acronym
Di-iso-nonylphthalate (*)	28553-12-0 68515-48-0	DINP
Di-n-octylphthalate	117-84-0	DNOP
Di(2-ethylhexyl)-phthalate	117-81-7	DEHP
Diisodecylphthalate (*)	26761-40-0 68515-49-1	DIDP
Butylbenzylphthalate	85-68-7	BBP
Dibutylphthalate	84-74-2	DBP
Di-iso-butylphthalate	84-69-5	DIBP
Di-C6-8-branched alkylphthalates	71888-89-6	DIHP
Di-C7-11-branched alkylphthalates	68515-42-4	DHNUP
Di-n-hexylphthalate	84-75-3	DHP
Di-(2-methoxyethyl)-phthalate	117-82-8	DMEP

(*) only for baby mattresses

The sum of the prohibited plasticizers shall be lower than 0.1% by weight.

Assessment and verification: The applicant shall provide a declaration supported by declarations from manufacturers of substances, as appropriate, confirming that the listed substances have not been included in the product. A list of plasticizers added is to be provided with concentrations and related H statements / R phrases. **Additional verification tests may be required: extraction from a sample shall be performed with dichloromethane using validated method and followed by analysis with GC/MS or HPLC/UV. Oeko-tex 100 certification shall be accepted as demonstrating compliance.**

Description of the criterion and rationale

Phthalates are a family of substances divided into two groups: high molecular weight (HMW) phthalates and low molecular weight (LMW) phthalates.

High molecular weight phthalates (HMW) such as DINP, DIDP and DPHP are registered under the REACH regulation, and are non-classified for any health and environmental hazard. These HMW phthalates are not on the Candidate List of substances of very high concern. However, a ban is proposed for:

1. The use of DINP and DIDP in baby mattresses, since these are prohibited in toys and sex toys;
2. DNOP, since information about the risks posed by this substance appear less clear and more uncertain.

Low molecular weight phthalates (LMW) such as DBP, BBP, DIBP and DEHP are recognised as substances of very high concern by the REACH regulation because of their effects on reproduction in animal studies.

Criterion 10 will restrict substances based on their hazard properties. However, specific exclusion are required because of the concern associated with some phthalates. The list of banned substances mirror that used by the Oeko-Tex 100 scheme which adopts this approach.^a In addition this criterion set limits based on total concentration of low molecular phthalates.

Cost Benefit Analysis:

The substances highlighted are already indirectly banned through the new criteria on hazardous substances. However, the concerns over flame retardants, biocides and phthalates led to include them in separate criteria. There should be no additional costs associated with this criterion over those incurred already through the new horizontal ban. Declaring the hazardous substances included in the product requires gathering data from suppliers. This information should be readily available from suppliers.

Test Procedures and Economic Burdens:

No test procedures are foreseen as suppliers should be aware of (or can identify) which substances are included in their materials (e.g. foams, padding, fabrics). Limiting the use of certain substances may impact on costs to manufacturers, however further feedback is required to quantify the extent of this.

Follow-up

Some modifications have been applied to the original proposal to allow for the use of high molecular weight phthalates in mattresses for adults. However, DNOP was banned from all mattresses.

^a http://www.oeko-tex.com/OekoTex100_PUBLIC/content1.asp?area=hauptmenue&site=grenzwerte&cls=02#10

Criterion 10. Restrictions on hazardous substances and mixtures in the final product

Heading and text:

Criterion 10. Hazardous substances and mixtures

10a. Substances of Very High Concern that may be contained within the bed mattress

The mattress or any homogenous components of the mattress shall not contain substances that meet the criteria in Article 57 of Regulation (EC) No 1907/2006 and of the Council of 18th December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) or have been identified according to the procedure described in Article 59(1) which establishes the Candidate List for Substances of Very High Concern.

No derogation shall be given concerning substances identified as substances of very high concern and included in the list foreseen in Article 59 of Regulation (EC) No 1907/2006, or substances meeting criteria of Article 57 of Regulation (EC) No 1907/2006, which are present in an article or in any homogenous part of a complex article in concentrations higher than 0.1 % w/w. The specific concentration limits of substances determined in accordance with Article 10 of Regulation (EC) No1272/2008 shall be applied when they are lower than 0.1 %.

Assessment and verification: Applicants shall screen the Candidate List that is current at the time of application for substances that may be present in the final product. The applicant shall provide a declaration of non-use for relevant Candidate List and SVHC substances. The list of substances identified as substances of very high concern in accordance with Article 59 of Regulation (EC) No 1907/2006 are included in the Candidate List is available at:

http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp.

Criterion 10b. Hazardous substances in the mattress structure, padding and textile coverings.

The mattress and any homogenous components of the mattress (including substances applied to padding, mattress ticking and removeable covers during textile dyeing, printing and finishing processes) shall not contain substances or mixtures that meet the criteria for classification in accordance with Regulation (EC) No 1272/2008 with the listed hazard classes or risk phrases.

Concentration limits for substances or mixtures meeting the criterion for classification in the hazard classes shall not exceed the generic or specific concentration limits determined in accordance with the Article 10 of Regulation (EC) No1272/2008 unless specified otherwise in a derogation listed within this criteria. Where specific concentration limits are determined they shall prevail against the generic ones.

Hazard Statement¹	Risk Phrase²
H300 Fatal if swallowed	R28
H301 Toxic if swallowed	R25
H304 May be fatal if swallowed and enters airways	R65
H310 Fatal in contact with skin	R27
H311 Toxic in contact with skin	R24

H330 Fatal if inhaled	R23/26
H331 Toxic if inhaled	R23
H340 May cause genetic defects	R46
H341 Suspected of causing genetic defects	R68
H350 May cause cancer	R45
H350i May cause cancer by inhalation	R49
H351 Suspected of causing cancer	R40
H360F May damage fertility	R60
H360D May damage the unborn child	R61
H360FD May damage fertility. May damage the unborn child	R60/61/60-61
H360Fd May damage fertility. Suspected of damaging the unborn child	R60/63
H360Df May damage the unborn child. Suspected of damaging fertility	R61/62
H361f Suspected of damaging fertility	R62
H361d Suspected of damaging the unborn child	R63
H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.	R62-63
H362 May cause harm to breast fed children	R64
H370 Causes damage to organs	R39/23/24/25/26/27/28
H371 May cause damage to organs	R68/20/21/22
H372 Causes damage to organs	R48/25/24/23
H373 May cause damage to organs	R48/20/21/22
H400 Very toxic to aquatic life	R50
H410 Very toxic to aquatic life with long-lasting effects	R50-53
H411 Toxic to aquatic life with long-lasting effects	R51-53
H412 Harmful to aquatic life with long-lasting effects	R52-53
H413 May cause long-lasting effects to aquatic life	R53
EUH059 Hazardous to the ozone layer	R59
EUH029 Contact with water liberates toxic gas	R29
EUH031 Contact with acids liberates toxic gas	R31
EUH032 Contact with acids liberates very toxic gas	R32
EUH070 Toxic by eye contact	R39-41
H334: May cause allergy or asthma symptoms or	R42

breathing difficulties if inhaled	
H317: May cause allergic skin reaction	R43

Notes

1. According to Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006
2. According to Directive 67/548/EEC and the REACH Directive 2006/121/EC and Directive 1999/45/EC as amended

The hazard classes and risk phrases generally apply to substances. However, where information on substances cannot be obtained, the classification rules for mixtures shall be applied. The use of substances or mixtures in the manufacturing of a mattress which upon processing change their properties in a way that the identified hazard no longer applies is exempted from the above requirement.

The following substances are specifically derogated from the requirements of this criteria:

Substance / Group of substances (hazard statements of concern)	Derogation conditions
Antimony Trioxide - ATO (H351)	The substance must be used as catalyst in polyester or as flame retardant synergist in textiles
Nickel (H317, H351, H372)	The substance must be contained in stainless steel
<p>Functional substances used in textiles. Specific derogations relate to:</p> <ul style="list-style-type: none"> - Dyes (H411, H412, H413, H300-331, H317 and H334). Concentration limit: 3.0% - Flame retardants (H317, H373, H411, H412, H413). Concentration limit: 20.0% - Stain repellents (H411, H412, H413). Concentration limit: 0.3% <p><i>The relevance/need for further textile derogations for brighteners, softeners</i></p>	<p>These derogations are subject to the maximum concentration limits stipulated and the derogation conditions listed under Textile Criteria 14.</p> <p><i>Manufacturers have expressed concern about the difficulty of being able to comply with the textile criteria. It is therefore for discussion/agreement whether to apply or omit the textile derogation conditions for dyes, flame retardants and stain repellents. These conditions relate to handling and control of emissions from hazardous substances at production sites.</i></p>

<p><i>and cross linking agents is to be checked.</i></p> <p>Process residues that may remain on the textile material. These may include carriers, leveling agents and surfactants:</p> <ul style="list-style-type: none"> - Hazard classes in Category B are derogated. <p>Concentration limit: 1.0%</p>	
<p>Glues and adhesives</p>	<p>The substances must not be classified as H351, H350, H340, H350i, H360F, H360D, H361f, H361d H360FD, H361fd, H360Fd, H360Df, H331, H330, H311, H301, H310, H300, H370, H372</p>

Assessment and verification: Compliance with this criterion will be demonstrated by providing a declaration on the non-classification of each substances into any of the hazard classes associated to the hazard statements listed above in accordance with Regulation (EC) 1272/2008, as far as this can be determined, as a minimum, from the information meeting the requirements listed in Annex VII of the Regulation (EC) 1907/2006.

In order to prepare the declaration the applicant shall provide a listing of all the components of the mattress. The applicant shall screen the composition of each component for substances that may be classified with hazards listed in this criteria. Applicants shall select the appropriate form of verification for each component. The main forms of verification are foreseen as follows:

- Components manufactured according to a formulation (eg. latex foam, PUR foam, glues and adhesives, plasticizers): SDS shall be compiled for the substances and mixtures used in the formulation which remain in the final product, either as an intrinsic part of the components structure or as a process residue.
- Chemical recipes used to impart function to a textile component (eg. mattress ticking, padding, flame retardants, biocides, plasticizers, textile auxiliaries and detergents, bleaching agents, dyes and pigments): SDS shall be compiled for the substances and mixtures used in textile recipes and formulations which remain in the final product from the dyeing, printing and/or finishing stages.
- Homogenous materials that have received some form of treatment or may contain contaminants or impurities (eg. springs and wires, coconut fibres): SDS shall be compiled for the substances and mixtures used in the formulation of treatments applied to materials. Chemical impurities and contaminants that are present above a cut-off limit of 0.1% w/w shall be identified and characterised.

This declaration for each component shall be supported by summarised information on the relevant characteristics associated to the hazard statements referred to in the above list, to the level of detail specified in section 10, 11 and 12 of Annex II of Regulation (EC) 1907/2006 (Requirements for the Compilation of Safety Data Sheets). Whenever possible, reference shall be made to the list of registered substances under the REACH regulation scheme, available at:

<http://echa.europa.eu/information-on-chemicals/registered-substances>. In alternative, reference shall be made to the C&L inventory database, available at: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Information on intrinsic properties of substances may be generated by means other tests, for instance through the use of alternative methods such as in vitro methods, by quantitative structure activity models or by the use of grouping or read-across in accordance with Annex XI of Regulation (EC) 1907/2006. The sharing of relevant data is strongly encouraged. The information provided shall relate to the forms or physical states of the substance or mixtures as used in the final product.

For substances listed in Annexes IV and V of Regulation (EC) 1907/2006, exempted from registration obligations under Article 2(7) (a) and (b) of Regulation 1907/2006, a declaration to this effect will suffice to comply with the requirements set out above.

Description of the criterion and rationale

Recent changes to the EU Ecolabel legislation (EC/66/2010) have placed further restrictions on the use of hazardous materials and substances. These changes are addressed in Article 6(6): "The EU Ecolabel may not be awarded to goods containing substances or preparations/mixtures meeting the criteria for classification as toxic, hazardous to the environment, carcinogenic, mutagenic or toxic for reproduction (CMR), in accordance with Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures nor to goods containing substances referred to in Article 57 of Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency". Derogations of specific substances are allowable in exceptional circumstances where inclusion would prevent take up of the EU Ecolabel or shift the environmental burden to other life cycle phases or impacts (Article 6(7) of the EU Ecolabel regulation).

This will require the introduction of a new criterion to specifically handle these requirements. Restrictions are well defined and, for consistency, the technical wording used as base for discussion in other product groups^{a b} was taken as reference and adapted here. The overall aim of the new criteria is to install a horizontal ban of substances based on their hazard properties, with derogations made under exception circumstances. Hazardous substances can be classified through hazard statements / risk phrases. A standard list of hazard statements reflecting the prescription set with Article 6(6) of the EU Ecolabel legislation (EC/66/2010) have been drawn by the Commission. Hazardous substances of concern must not be contained in the final product or in any part of it, if present above a certain concentration threshold.

The text of the criterion and the assessment and verification section were mainly inspired by the Commission Decision 2011/330/EU, establishing the EU Ecolabel criteria for notebook computers, and by the Commission Decision 2012/721/EU establishing the EU Ecolabel criteria for Industrial and Institutional Laundry Detergents, respectively. Nevertheless, some variations to this reference basis have been applied here in order to take into account for comments received from stakeholders, recent orientations provided by the horizontal task force working on this issue and specific needs for this product group.

^a Commission Decision 2011/330/EU establishing the ecological criteria for the award of the EU Ecolabel for notebook computers

^b Commission Decision (Draft) establishing the ecological criteria for the award of the EU Ecolabel for Industrial and Institutional Laundry Detergents, available at <http://ec.europa.eu/environment/ecolabel/documents/Last-draft-Criteria-Laundry-detergents-PRO.pdf>

The main features of the approach followed in the case of bed mattresses are reported as follows:

- Risk phases R42 (May cause allergy or asthma symptoms or breathing difficulties if inhaled) and R43 (May cause allergic skin reaction) have been included to the list of restricted hazard properties, as already done for other product groups, because considered appropriate for this product group.
- In order to align with the parallel revision of the EU Ecolabel criteria for textiles, a categorization of hazard statements and risk phrases into two groups is proposed. This categorization applies only for textiles material used in bed mattresses. The categories are notionally referred to as A and B. This distinguishment is based on the differentiation made within the CLP Guidance in terms of categories and levels of hazards. Higher concern is given to hazard statements belonging to category A. These match, to some extent, with the definition of substance of very high concern provided with Article 57 of the Regulation (EC) No 1907/2006
- The concentration limit for SVHC is set to 0.1% by weight, in alignment with other EU Ecolabel product groups and as requested by industry stakeholders.
- Prescriptions on substances listed in accordance with article 59(1) of Regulation (EC) No 1907/2006 have been included as paragraph of the criterion (and not as separate criterion).
- Reference should be made, whenever possible, to the list of registered substances under the REACH regulation scheme, available at: <http://echa.europa.eu/information-on-chemicals/registered-substances>.

The need of applying or some derogation was discussed along the revision process. A derogation is proposed for:

- The use of Antimony Trioxide as catalyst in polyester or as flame retardant synergist in textiles. The REACH dossier for ATO^a classifies this substance as H351 - suspected of causing cancer. Hazards seems primarily associated to inhalation exposure during manufacture. Referencing to recently peer-reviewed scientific research^b industry reported that the use of ATO in mattresses is safe for both the environment and human health. Moreover, workplace safety is guaranteed by complying with the Occupational Exposure Limits (currently 0.5 mg/m³).
- The use of nickel in stainless steel. Nickel may be used to produce the stainless steel which composed springs. When it is present as an alloy, the associated hazard statements do not apply.
- Risk phrases listed as "Category B" for groups of functional substances used in textiles and residues that may remain on textiles, in order to align with the ongoing revision of the EU Ecolabel criteria for Textiles.
- Some risk phrases for glues and adhesives, in order to align with the existing criterion number 7 of the EU Ecolabel for bed mattresses (Commission Decision 2009/598/EC).

During the project, the need of a derogation was even explored for acid boric and natural latex. However, derogations are not necessary because:

- Acid boric does not seem being used in Europe for applications related to mattresses.
- Natural latex is the main feedstock material with which natural latex foams are produced. While natural latex can cause allergic skin reactions in its natural form. foams do not carry any risk phrases.

^a http://apps.echa.europa.eu/registered/data/dossiers/DISS-9eb02d6b-39b7-666e-e044-00144f67d031/AGGR-79ef4347-6b30-427f-b8d6-e061caa8fad5_DISS-9eb02d6b-39b7-666e-e044-00144f67d031.html#L-a32752a0-6813-4bb3-9263-14d976a82166

^b The European Union Risk Assessment Report for DIANTIMONY TRIOXIDE http://esis.jrc.ec.europa.eu/doc/risk_assessment/REPORT/datreport415.pdf

Cost Benefit Analysis:

One of the requirements of the revision process is to align the new criteria with the Ecolabel regulation. Within the revision process no concerns have been raised about the inclusion of this criterion and the impact this might have on mattresses or materials used in mattresses, provided trace concentrations are acceptable and derogations are made for a small number of materials. The benefit of this is clear as it reduces potential exposure to hazardous substances through a blanket criterion based of hazard statements rather than identifying substances individually.

Test Procedures and Economic Burdens:

Verification is achieved through declarations and safety data sheets, therefore no testing should be needed. Reference should be made to the list of registered substances under the REACH regulation scheme, available at: <http://echa.europa.eu/information-on-chemicals/registered-substances>. Gathering this data is likely to require applicants to contact suppliers to outline the composition of materials used and identify from any substances which are added during processing.

Follow-up

The approach presented seems workable for bed mattresses. Some key aspects of the criterion design are outlined in the followings:

- Concentration limit for SVHC set to 0.1% by weight
- Derogation conditions involving ATO, nickel, textiles, glues
- Reference to the information reported in the REACH dossiers (when checking hazard classification of substances).
- Alignment with the ongoing revision of the EU Ecolabel criteria for textiles.

Criterion 11. Emission of Volatile Organic Compounds (VOCs) from the mattress

Heading and text:

Criterion 11. Emission of Volatile Organic Compounds (VOCs) from the mattress

The contribution of mattresses to the VOC content of the indoor air shall not exceed the final values reported below, for a period of 7 days or, alternatively, 28 days.

Values are calculated with the emission test chamber method and with reference to the European Reference Room, by analogy with the procedure specified in the 'Health-related Evaluation Procedure for Volatile Organic Compounds Emissions from Building Products' developed by the AgBB (2012 version available at http://www.umweltbundesamt.de/produkte-bauprodukte/archive/agbb_evaluation_scheme_2012.pdf).

Substance	Final value 7th day	Final value 28th day
Formaldehyde	< 60 µg/m ³ (< 0.05 ppm)	< 60 µg/m ³ (< 0.05 ppm)
Other aldehydes	< 60 µg/m ³ (< 0.05 ppm)	< 60 µg/m ³ (< 0,05 ppm)
VOCs with retention range within C6-C16 (total)	< 500 µg/m ³	< 200 µg/m ³
VOCs with retention range above C16 (total)	< 100 µg/m ³	< 40 µg/m ³
Each detectable compound classified as categories C1A or C1B according to the Regulation (EC) No 1272/2008	< 1 µg/m ³	< 1 µg/m ³

Assessment and verification: The applicant shall perform a test chamber analysis based on the standard EN ISO 16000-9.

The analysis of formaldehyde and other aldehydes shall comply with the standard ISO 16000-3; the analysis of the other VOCs shall comply with the standard ISO 16000-6.

Test results shall be calculated for an area specific ventilation rate "q" = 0.5 m³/m²h, corresponding to a loading factor "L" of 1 m²/m³ and an air change rate "n" of 0.5 per hour. In all these cases, the total surface of all surfaces (upside, downside, and edges) of the mattress determine the area used for calculation of the loading factor. The test shall be performed on an entire mattress. Should this not be possible for any reason, any of the following alternative procedures of testing may be applied:

1. Performing the test on a representative sample of the mattress (i.e. one half, one quarter or one eighth); cut edges shall be closed airtight by appropriate means. In order to provide a conservative estimation of the concentration values expected from the entire mattress, concentrations registered with the sample shall be scaled-up by volume (i.e. emissions will be multiplied by a factor 2, 4 or 8);
2. Performing the test for each separate element forming part of the mattress. In order to provide a conservative estimation of the concentration values expected from the entire mattress, contributions registered with single components will be combined using this formula $C_M = \sum \omega_i \cdot C_i$;

where:

- " C_M " ($\mu\text{g}\cdot\text{m}^{-3}$) is the overall contribution from the entire mattress;
- " C_i " ($\mu\text{g}\cdot\text{m}^{-3}\cdot\text{kg}_i^{-1}$) is the contribution per unit of mass given by each-element "i" forming part of the mattress;
- " ω_i " (kg_i) is the weight of the element "i" in the entire mattress.

The emissions of all elements of the mattress are summed up without taking into account any adsorption or barrier effects (worst-case approach).

Description of the criterion and rationale

Industry stated that it is difficult to test VOCs in the entire mattress. This is especially true for SMEs because the test can cost roughly EUR 50 000/mattress. Other tests or verifications should be proposed.

A manufacturer stated that they only perform this type of test on a risk basis, e.g. where high content of recycled material is used. It was suggested to reduce the scale of test to a sample of the product. However, there is the risk that this would be not representative because of boundary effects. An alternative approach could be the measurement of VOC emission from each single parts of the mattress.

Apart from this, it was reported that testing procedures need to be updated:

- EN 13419-1 (test chambers) no longer exists. It is now available as ISO 16000-9 (When available, CEN/TS 16516 (2013) should be applied in analogy). Based on this, the assessment and verification procedure should be updated also for the other criteria related to VOCs, i.e. 1(b) and 2(b).
- EN 13419-2 (test cells) no longer exists; it is now available as ISO 16000-10 but this is not a test chamber and therefore it is not applicable to mattresses. Based on this, the assessment and verification procedure should be updated also for the other criteria related to VOCs, i.e. 1(b) and 2(b).
- ISO 16000-6 refers to the measurement of VOCs. A new reference to ISO 16000-3 is necessary for the measurement of formaldehyde and other aldehydes. Based on this, the assessment and verification procedure should be updated also for the other criteria related to VOCs, i.e. 1(b) and 2(b).
- The latest version of AgBB now is of 2012, not 2005.
- Time reference must be always provided.

The criterion on VOC emissions from the entire mattress has been revised based on the information gathered along the project. References to standards and testing methods have been updated and three assessment options are proposed:

A. Test performed on the whole mattress (criterion as usual and reference);

B. Test performed on a sample of mattress and estimation of overall emissions (1st potential alternative);

C. Test performed on different materials and recombination of single results to estimate the overall emissions (2nd potential alternative).

Options B and C should provide conservative estimations.

Follow-up

The need of revising this criterion was raised at the 2nd AHWG meeting (Brussels, September 2012) and the new proposal criterion was not discussed yet. Feedback from stakeholders is requested.

DRAFT

Criterion 12. Technical performance

Criterion 12(a):

Criterion 12. Technical performance

(a) Quality

The mattress is designed in a way that a quality product meeting the needs of the consumer is placed on the market.

Assessment and verification: The applicants shall provide a report describing the approach followed and the actions taken in order to ensure the quality of the product, the fulfillment of specific functional characteristics and the respect of thermo-hygrometric wellness requirements. The following aspects should be taken into consideration: research and development, selection of materials, internal testing and verification procedures for demonstrating the fulfillment of functional characteristics and the respect of thermo-hygrometric wellness requirements.

Description of the criterion and rationale

Including evidence about the quality of the product should ensure that mattresses continue to be fit for purpose over several years. Consequently, this will provide confidence to the consumer, and help to prevent premature replacements (thus limiting the impacts associated with new mattress purchase).

Cost Benefit Analysis:

The determination of the costs associated with these criteria is uncertain. However, such prescriptions are supposed to increase the attention towards quality aspects which should ultimately increase the appeal of the EU Ecolabel for producers of bed mattresses.

Test Procedures and Economic Burdens:

No test procedures are required for the quality assurance declaration as this will involve the generation of a report based on internal information.

Follow-up

The possibility of requiring manufacturer to conduct the performance LGA test was removed from the criterion proposal because this test is apparently performed only by TUV in Germany and does not form part of any standards. No other test seems relevant for inclusion at the moment.

Criterion 12(b)

(b) Durability

The lifetime of a household mattress is expected to be 10 years; this can vary depending on application. Mattresses shall present the following functional characteristics:

- Loss of height < 15%
- Loss of firmness < 20%

Assessment and verification: The applicant shall provide a test report describing the results obtained following the test method BS EN 1957. The losses of height and firmness refer to the difference between the measurements made initially (at 100 cycles) and after the completion (30 000 cycles) of the durability test

Description of the criterion and rationale

Apart from some minor wording changes, no major modification was applied to the requirements of the Commission Decision 2009/598/EC.

Criterion 12(c)

(c) Warranty

A list of recommendations on how to use, maintain and dispose the mattress shall be reported in the warranty documentation. The warranty for the mattress must be valid for a period of at least 10 years. This prescription shall not be required for baby mattresses.

Assessment and verification: The applicant shall provide documentation attesting the implementation of the warranty scheme.

Description of the criterion and rationale

The technical lifespan of a mattress can be 7-10 years and more. However, the real lifespan of a mattress can be even longer, up to 25 years and more. According to an industry-financed study, a mattress should not be used after 7 years because of hygienic reasons^a. By implementing an extended warranty period, manufacturers will seek to ensure the performance of the mattress is guaranteed for an appropriate period of time. Consequently, this will provide confidence to the consumer and will ultimately help to prevent premature replacements (thus limiting the impacts associated with new mattress purchase). Based on stakeholders consultation, it is proposed to extend the warranty period to 10 years.

Cost Benefit Analysis:

It is difficult to quantify the costs associated with implementing this requirement. Costs for mattress construction and for mattress replacement are both likely to increase. The benefit that implementing this change will have is to ensure the durability of the mattress for an appropriate length of time. The consumer will have confidence that quality of the product is ensured by fulfilling the EU Ecolabel criteria for bed mattresses. The quality of materials is supposed to be increased.

^a Bain, D. (2006) A review of the bio-hazards presented by dust mites in older mattresses. Report from EBIA

This is likely to increase the environmental impact of the mattress but impacts are off-set by ensuring an extended lifespan of the product.

Test Procedures and Economic Burdens:

The testing requirements are relatively simple as only declaration and documented evidence is required; the cost of this will be minimal. The greater economic burdens will be associated with maintaining the extended warranty period.

Follow-up

Some modifications have been applied to the original proposal based on the feedback received from stakeholders and presented above.

DRAFT

Criterion 13. Design for disassembly and recovery of materials

Heading and text:

Criterion 13. Design for disassembly and recovery of materials

The manufacturer shall demonstrate that the mattress can be dismantled for the purpose of:

- undertaking repairs and replacements of worn-out parts,
- upgrading older or obsolete parts, and
- separating parts and materials for the potential recycle of them.

Assessment and verification: A report shall be submitted with the application detailing the dismantling of the mattress and the possible disposal of each part. For instance, the following actions could facilitate the dismantling of the mattress: preferring sewing to the application of glue; using removable covers; using single and recyclable materials for each homogeneous part. The report shall include an exploded diagram of the mattress, labelling the main parts of the product as well as identifying any hazardous substances.

Description of the criterion and rationale

Attention on re-use and re-manufacture is increasing significantly within the industry. Mattresses can be more or less difficult to disassemble and repair depending on their design. The design of the mattress could be improved to enhance disassembling and material recovery. Guidelines on how to draft such a prescription can be found, for instance, on article 4 of the Commission Decision 2009/300/EC (EU Ecolabel criteria for televisions).

Cost Benefit Analysis:

Little cost is expected to be associated with this action as this information should be available to the manufacturer. This may provide some benefit for the disassembly and materials recovery market as it will provide a clearer idea of the composition and materials used in the mattress. However, it is possible that this will only form a small proportion of the mattress market. This information may also benefit repair markets if the mattress is damaged, helping to encourage repair rather than disposal.

Test Procedures and Economic Burdens:

The information required is in the form of annotated drawings and descriptions and short document outlining design considerations. These documents will be relatively straightforward, and should not present significant burdens on the applicant.

Follow-up

The original proposal was revised adapting the guidelines provided with article 4 of the Commission Decision 2009/300/EC (EU Ecolabel criteria for televisions).

Criterion 14. Information appearing on the EU Ecolabel

Heading and text:

Criterion 14. Information appearing on the EU Ecolabel

The EU Ecolabel can be applied both on the packaging and on the product. Box 2 of the EU Ecolabel shall contain the following text:

- 'Durable and high quality product'
- 'It restricts hazardous substances and minimises indoor air pollution'
- 'Environmental issues taken into account in the design stage'

The following text shall moreover appear:

'For more information on why this product has been awarded the EU Ecolabel, please visit <http://ec.europa.eu/environment/ecolabel/>

Assessment and verification: The applicant shall provide a declaration of compliance and visual evidence.

Description of the criterion and rationale

Minor alterations to the wording of the Ecolabel box were needed to reflect better the content of the criteria. These are the new proposed sentences:

1. "Durable and high quality" statement moved at the top of the list.
2. Air pollution and hazardous substances could be merged into one point indicating impacts on human health are minimised.
3. A third point could state that environmental issues are taken into due account in the design of the product.

Follow-up

No observations have been raised by stakeholders

Criterion 15. Additional information to consumers

Heading and text:

Criterion 15. Additional information to consumers

The applicant shall provide consumers in written or audiovisual form with a list of recommendations on how to use, maintain and dispose the mattress.

Assessment and verification: The applicant shall provide a declaration of compliance and visual evidence.

Description of the criterion and rationale

The direct education of consumers could help prolonging the life of a mattress and disposing appropriately the product after its use. Producers could for instance provide (in their websites or as written documentation) a list of actions to follow in order to ensure the mattress is used and maintained correctly for its technical lifetime.

For instance, these are the "care and cleaning" instructions provided by IKEA in one of their mattresses:

- *Complement the mattress with a mattress protector or a mattress pad. It makes it more hygienic, as it is easy to remove and clean.*
- *Some mattresses and pads have a washable cover. Read the tag inside the cover for more information. Make sure that the zipper is closed when washing the mattress cover. Vacuuming the mattress helps to remove dust and mites. Use upholstery cleaner to remove stains.*
- *If your mattress is turnable you should turn it about every three months. Turning a mattress ensures more even wear and helps to prolong its comfort.*
- *Don't fold the mattress. It can damage the springs and materials inside.*
- *Even the best mattresses become less comfortable with age, and all mattresses accumulate dust and mites over the years. So even if the SULTAN mattresses have a 25-year guarantee, we still recommend that you change your mattress every 8–10 years.*

Guidelines have been provided even by the UK's [National Bed Federation](#):

Proper care will keep your bed in good condition. Always read and retain manufacturers care instructions and ask your retailer for advice, too. Otherwise, the following tips will help you to get the best out of your bed during its natural life.

1. *Use a washable, protective cover to protect the mattress (and pillows) from stains. Barrier fabrics for allergy sufferers are also available.*
2. *In the mornings, throw back the bed clothes and leave the bed to air for 20 minutes to allow body moisture to evaporate.*
3. *Turning your mattress over from side and side and end to end every few months (every week for the first three months) helps upholstery fillings to settle down more evenly. Some more luxurious mattresses, with much thicker layers of fillings designed to mould themselves to the contours of your body, may retain signs of these impressions, despite turning. Even non-turn mattresses need to be rotated every few months.*
4. *Don't make a habit of sitting on the edge of the bed and don't let the kids bounce on it.*

5. *Don't roll up or squash a mattress to store or transport it - this can cause permanent damage.*
6. *Handles are designed to help you position a mattress on its base - do not use them to support the full weight of the mattress - they may pull out and damage the fabric.*
7. *Don't leave polythene wrappings on a new mattress - dampness, mildew and rotting could all result from a build-up of condensation.*
8. *Vacuum your mattress and base from time to time to remove fluff and dust. This should be carefully done so as not to dislodge fillings or damage tufts. Open windows while vacuuming - especially if there is an asthma sufferer in the house.*
9. *When tackling stains, use mild detergent and warm or cold water. Never over soak a mattress or base.*
10. *Putting a new mattress on a base for which it was not intended, a new mattress on an old base or a board between the mattress and base can impede comfort and reduce the useful life of the mattress - as well as affecting any guarantees or warranties.*

Cost Benefit Analysis:

Cost associated with this criterion should be negligible, compared to the benefits related to the correct use and disposal of the product.

Test Procedures and Economic Burdens:

No test procedures are required.

Follow-up

No observations have been raised by stakeholders

3.3 Other changes applied

Change 1

Removing criterion 5 on wooden materials from the final set of criteria revising the Commission Decision 2009/598/EC

Description of the change and rationale

Removal of all criteria for wood is needed if wooden bases and similar items are removed from the scope. If these products remain within scope, the criteria should be aligned with the recently revised criteria for Copying and Graphic Paper Criteria.

Cost Benefit Analysis:

There is no impact if removed. The existing criteria prescribes that 60% of wood is sourced from sustainable sources, whereas the new criteria specifies that all wood should be from certified or recycled sources. FSC certified lumber commands a price premium of between 15-25% over no FSC lumber.^a This could have an effect on products containing wood. The benefits of adopting this criterion would be that it provides scope for the use of recycled material or, where virgin material is used, the criterion would ensure that:

- Wood sources are managed in an environmentally, socially, appropriate and economically viable manner.
- Forests are managed with respect to some basic criteria, if the origin of the virgin wood is not third party certified. However this can only comprise 50% of virgin wood. This would help exclude from the following sources:
 - Illegally harvested forests;
 - Wood harvested in violation of traditional and civil rights;
 - Wood harvested in forests in which High Conservation Values (areas particularly worth
 - of protection) are threatened through management activities;
 - Wood harvested from conversion of natural forests;
 - Wood harvested from areas where genetically modified trees are planted.

Test Procedures and Economic Burdens:

No specific test procedures are associated with the implementing change in criteria. However, relevant certificates and declarations will be needed to demonstrate the authenticity of certified or recycled wood, indicating types, quantities and origin. Documentation indicating that this is used in the Ecolabelled product will also be provided.

Some economic burden is associated with procurement of certified wood, which could increase the cost of the product. In addition, an extra burden will be placed on the manufacturing process, as

^a <http://www.fsc-uk.org/?p=3569>

procedures will be required to ensure that the correct wood is used in the EU Ecolabelled product, wood may thus need to be stored and processed separately.

Follow-up

If wooden bed bases are kept within the scope of the product group, criteria on sustainable forest management can be changed with the following wording (taken from the EU Ecolabel Copying and Graphic Paper criteria):

"The wood used in the mattress may be from a recycled or virgin source.

Virgin wood shall be covered by valid sustainable forest management and chain of custody certificates issued by an independent third party certification scheme such as FSC, PEFC or equivalent.

However, where certification schemes allow mixing of certified material and uncertified material in a product or product line, the proportion of uncertified material shall not exceed 50 %. Such uncertified material shall be covered by a verification system which ensures that it is legally sourced and meets any other requirement of the certification scheme with respect to uncertified material.

The certification bodies issuing forest and/or chain of custody certificates shall be accredited/recognised by that certification scheme.

Assessment and verification: The applicant shall provide appropriate documentation indicating the types, quantities and origins of wood used in the mattress production.

Where virgin wood is used, the product shall be covered by valid forest management and chain of custody certificates issued by an independent third party certification scheme, such as PEFC, FSC or equivalent. If the product or product line includes uncertified material, proof should be provided that the uncertified material is less than 50 % and is covered by a verification system which ensures that it is legally sourced and meets any other requirement of the certification scheme with respect to uncertified material.

Where recycled wood is used, the applicant shall provide a declaration stating the average amount of recycled wood used for production of the mattress."

Change 2

Removing criterion 13 on packaging from the final set of criteria revising the Commission Decision 2009/598/EC

Description of the change and rationale

The impacts of packaging are found to be small when compared to the rest of the mattresses lifecycle. Therefore, prescribing requirements for the use of recycled materials in packaging would place a disproportionate burden on applicants.

Cost Benefit Analysis:

There is little cost associated with this change, some reduction in cost maybe associated with the change in packaging requirement.

Test Procedures and Economic Burdens:

There is little cost associated with this change, some reduction in cost maybe associated with the change in packaging requirement.

Follow-up

Criteria on packaging is not considered a primary source of impacts for this product group. Nevertheless, a part of stakeholders still consider such prescription important.

DRAFT

4 Overview on all the proposal discussed

The issues listed in the table below were raised during the criteria revision process; they would represent either revisions to existing criteria or addition of new criteria. After the analysis summarised in the Preliminary Report (available at <http://susproc.jrc.ec.europa.eu/mattresses/>), it has been decided which changes to propose for inclusion in the current revision of the criteria (see last column of the table). For further information on the proposal withdrawn it is recommendable to refer to Section 5 of the Preliminary Report.

Criteria area	Issue	Revision/ New Element	Comment
1. Materials	Consumption of materials		
	a. Formulation of the mattress	New	<ul style="list-style-type: none"> Proposal on eco-design of mattresses withdrawn after the 1st AHWG meeting
	Sourcing of materials		
	b. Use of renewable-based materials	New	<ul style="list-style-type: none"> Proposal on promotion of renewable materials withdrawn after the 1st AHWG meeting
	c. Use of organic materials	New	<ul style="list-style-type: none"> Proposal on promotion of organic materials withdrawn after the 1st AHWG meeting
	d. Use of recycled materials	New	<ul style="list-style-type: none"> Proposal on promotion of recycled materials withdrawn after the 1st AHWG meeting
	e. Use of certified and sustainable materials	Revision for wood/ New for others	<ul style="list-style-type: none"> Revised criterion necessary for wood only if wooden bed bases are of relevance (See Section 3.3 in the Technical Report) Proposal on sourcing sustainable-certified natural latex for the production of natural latex foams withdrawn after the 1st AHWG meeting Proposal on sourcing sustainable-certified vegetable oils for the production of PUR foams withdrawn after the 1st AHWG meeting
	f. Energy and LCA requirements	New	<ul style="list-style-type: none"> Proposal of screening materials based on energy or other LCA benchmarks withdrawn after the 1st AHWG meeting
	Production of materials		
g. Latex and PUR foams	New	<ul style="list-style-type: none"> Proposal of setting water emission limits for latex production withdrawn after the 2nd AHWG meeting Proposal of avoiding the use of TDI in 	

Criteria area	Issue	Revision/ New Element	Comment
			<p>PUR foam production withdrawn after the 2nd AHWG meeting</p> <ul style="list-style-type: none"> Proposal of setting emission limits for the production of diisocyanates (precursors of PUR foams) withdrawn after the 2nd AHWG meeting
	h. Springs	New	<ul style="list-style-type: none"> Proposal of avoiding the use of stainless steel withdrawn after the 2nd AHWG meeting Proposal of sourcing steel in accordance with updated BAT withdrawn after the 2nd AHWG meeting
	i. Textiles	New	<ul style="list-style-type: none"> New proposal presented after the 2nd AHWG meeting (See Section 3.2 in the Technical Report)
2. Manufacture and storage	a. Energy performance	New	<ul style="list-style-type: none"> Proposal on requiring energy data for future benchmarking withdrawn after the 1st AHWG meeting
	b. Best industrial practices	New	<ul style="list-style-type: none"> Proposal on requiring the implementation of measure for storage and distribution of the product withdrawn after the 2nd AHWG meeting
	c. EMS / CSR criteria for the industrial site	New	<ul style="list-style-type: none"> Proposal on requiring the implementation of EMS/CSR schemes withdrawn after the 1st AHWG meeting
3. Substances	a. Use of materials and substances of concern		
	- Horizontal approach	New	<ul style="list-style-type: none"> New proposal presented after the 2nd AHWG meeting (See Section 3.2 in the Technical Report)
	- Materials	Revision	<ul style="list-style-type: none"> New proposal presented for Latex and for PUR foams after the 2nd AHWG meeting (See Section 3.2 in the Technical Report)
	- Flame retardants	Revision	<ul style="list-style-type: none"> Proposal unchanged (See Section 3.2 in the Technical Report)
	- Biocides	Revision	<ul style="list-style-type: none"> New proposal presented after the 2nd AHWG meeting (See Section 3.2 in the Technical Report)
	- Plasticizers	New	<ul style="list-style-type: none"> New proposal presented after the 2nd AHWG meeting (See Section 3.2 in the Technical Report)
4. Fitness for use	a. Quality of the product		
	- Extended warranty	New	<ul style="list-style-type: none"> New proposal presented after the

Criteria area	Issue	Revision/ New Element	Comment
			2 nd AHWG meeting (See Section 3.2 in the Technical Report)
	- Additional requirements on the technical performance	New	<ul style="list-style-type: none"> New proposal presented after the 2nd AHWG meeting (See Section 3.2 in the Technical Report)
5. Packaging	a. Significance of the criterion on packaging	Revision	<ul style="list-style-type: none"> Proposal of removing prescription on packaging kept (See Section 3.3 in the Technical Report)
6. End of life	a. Diversion from landfill through a collection system	New	<ul style="list-style-type: none"> Proposal of diverting from landfill through a collection system withdrawn after the 2nd AHWG meeting
	b. Design for disassembling and recovery of materials	New	<ul style="list-style-type: none"> New proposal on design for disassembling presented (See section 3.3 in the Technical Report)
7. Environmental performance	a. Energy and Life cycle performance of the product	New	<ul style="list-style-type: none"> Proposal on requiring a LCA study for future benchmarking withdrawn after the 1st AHWG meeting
8. Others	a. Consistency of the criteria	New	<ul style="list-style-type: none"> Some change applied (See Section 3.3 in the Technical Report)
	b. Information of consumers and on the box 2 of the label	Revision	<ul style="list-style-type: none"> Proposal unchanged for box 2; nre proposal presented for information of consumers (See Section 3.2 in the Technical Report)
	c. VOCs emissions from the entire mattress	Revision	<ul style="list-style-type: none"> New proposal presented for testing the criterion (See Section 3.2 in the Technical Report)

5. Possible issues to consider in the next revision

Within the revision process several issues and actions have been outlined which have not been taken into consideration within the current revision. Aspects of interest for the next revision could for instance:

A. Materials

- Sustainable sourcing of latex and PUR foams
- Emission limits for latex and PUR foams production
- Criteria on metals and plastic springs
- Additional criteria on sourcing and production of textiles for ticking and padding

B. Manufacture

- Energy consumption limits for production and storage sites
- Requirement for storage and distribution

C. Use

- Additional requirement on thermo-hygrometric wellness

D. End of Life

- Promotion of disposal practices aimed at diverting from landfill

D. Environmental performance

- Implementation of lifecycle requirements (e.g. for GHG emissions)
- Implementation of eco-design principles (aimed at finding a optimal balance between life of the mattress and environmental impacts)