


EU Ecolabel criteria revision and Green Public Procurement criteria development for the product group "Bed Mattresses"

**Preliminary recommendations
for scope and criteria revision**

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Stakeholder Consultation Document

September 2011



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1 Introduction

1.1 Background

This document is part of the initial stages of the revision of EU Ecolabel criteria and development of Green Public Procurement Criteria (GPP) for bed mattresses. This document is intended to be circulated to stakeholders in order to raise awareness of this revision, explain the revision process, and to obtain feedback on existing criteria and proposed changes.

We request that you read this document in full, and that you provide any responses to the questions using the associated form (see Appendix 3). We also would appreciate it if you could provide us with the reasoning behind each answer.

1.2 EU Ecolabel & GPP

The EU Ecolabel and Green Public Procurement (GPP) are mechanisms which have been introduced within the EU to encourage the production and consumption of more environmentally friendly products and services. These schemes help purchasers and consumers to make more informed decisions through certification of the environmental credentials of a product or service.

The EU Ecolabel is a voluntary scheme, regulated by the European Commission^a, which is used to distinguish environmentally beneficial products and services. The EU Ecolabel is awarded through an application process which demonstrates that the Ecolabel criteria specified for a particular product group are met. Successful applicants are then allowed to use the EU Ecolabel logo and advertise their product as having been awarded the EU Ecolabel. The criteria for a particular product group are designed to apply to the best 10-20% of products based on environmental performance. Therefore, over time - as product performance, markets and legislation change - these criteria need to be updated to ensure they remain relevant, as well as strict enough to capture the top 10-20% of products. Using this process the overall environmental impact of a whole product group will be improved.

GPP is a voluntary instrument which European public authorities can utilise in the procurement of goods, services and works. By using the extensive purchasing power of public authorities, GPP can make important contributions to sustainable consumption and production by motivating manufacturers to adopt more sustainable environmentally friendly practices. This in turn will help stimulate a critical mass of demand for these goods and services which otherwise may be difficult to get on the market. Strong but realistic criteria are required to ensure that this has maximum impact over the relevant product categories, whilst allowing producers to meet the performance guidelines.

Several GPP and Ecolabel product group criteria are in the process of being revised and updated: Oakdene Hollins is undertaking the revision of the criteria for bed mattresses. The existing set of EU Ecolabel criteria for bed mattresses were adopted in July 2009^b. To date there appears to have been very limited interest and uptake, with evidence indicating that this may be because the criteria are too difficult to achieve. By contrast there are at present no GPP criteria for bed mattresses. Therefore, this process to revise EU Ecolabel criteria and define GPP criteria, based on a common evidence base, is both relevant and timely.

^a Regulation (EC) No 66/2010

^b 2009/598/EC: Commission Decision of 9th July 2009

1.3 *Bed mattresses and the EU Ecolabel*

Several ecolabelling schemes have developed criteria for mattresses (see Table 1). These schemes either specifically target mattresses or include mattresses as a part of a wider product group. Other ecolabel schemes, such as the Japanese Eco-leaf or US Green Seal were found not to include mattresses within their certified products.

Table 1: Summary of ecolabels applicable to mattresses

Ecolabel Name	Region	Product Group	Date adopted	Known Licences/ Companies Awarded*
EU Ecolabel	EU	Mattresses	July 2009	2
Blue Angel	Germany	Mattresses	April 2010	4
Austrian Ecolabel	Austria	Mattresses	Jan 2011	4
Nordic Swan	Denmark, Finland, Iceland, Norway, Sweden	Furniture	March 2011	1
Green Mark	Taiwan	Mattresses	April 2010	Unknown

*Specifically for mattresses, this may include several products

The EU Ecolabel criteria for mattresses were adopted just over two years ago, and are the oldest of the identified ecolabel criteria for mattresses, though comparison shows that many similarities exist between the different sets of criteria. Within the EU Ecolabel criteria, various aspects of a mattress' composition, contents and manufacture are assessed, including residual heavy metals, pigments and dyes, flame retardants and biocides. A summary guide of all the criteria can be found in Appendix 1.

At present, we are only aware of two companies that have active EU Ecolabel licences for this product group:

- Carpenter ApS – Certified by Ecolabelling Denmark
- Elite SA – Certified by VKI Austria.

This is despite the fact that several potential applicants are reported to have made enquiries with different EU Ecolabel competent bodies. Therefore the uptake of the EU Ecolabel for mattresses represents a very low uptake compared to other product groups which have granted multiple licences on similar timeframe.

In addition, since the last criteria were agreed other factors have changed. For example, the amendment of the EU Ecolabel regulation^a and the introduction of the EU REACH Directive.

1.4 *Revision process*

In order to revise the existing EU Ecolabel criteria and to develop GPP criteria, the following tasks are being undertaken:

- Preliminary recommendations on the revision of scope
- Revisions of the product definition and categorization
- Market and technical analysis
- Analysis of potential benefits
- Proposal of revised criteria.

This activity falls within the first step of this process, by gathering information from stakeholders.

^a 2010/55/EC or 2010/66/EC

It should be noted that revision of the EU Ecolabel criteria for textiles is happening simultaneously. Due to the integral use of textiles in bed mattresses, the outputs and findings of this other study are likely to influence the revision of the criteria for bed mattresses. This should be borne in mind throughout this process.

1.5 Purpose of this document

This document forms part of the first task in the process of revision and development of criteria. It has been designed to provide a mechanism for stakeholders to comment on existing criteria and provide feedback on proposed changes. There is also scope for further comments or suggestions not specifically outlined within this document.

Amendments and issues are described in section 2, these were identified through:

- Examination of existing criteria and comparison with others,
- Examination of Ad-hoc working group meetings and issues raised by Ecolabel Competent Bodies,
- Company issues.

These range from the definition of the scope of the product group to inclusion of criteria related, for instance, to specifying organically produced materials or the use of flame retardants.

Each proposal is discussed with related comments. For each, specific questions are asked of stakeholders to help the development process. Further feedback related to each issue is also encouraged to ensure that this process is as comprehensive as possible, and to provide challenging but realistic targets for manufacturers to meet.

2 Preliminary recommendations to revision of scope

The initial focus of this work is to review the existing EU Ecolabel criteria for bed mattresses. This review can be divided into the following categories, each discussed in a separate section below:

Section 2.1	Existing definition of bed mattresses
Section 2.2	Issues with existing criteria
Section 2.3	New/additional criteria
Section 2.4	Additional discussion points

Issues which may come under consideration are listed here, with each described in more detail below in the relevant section:

- 1 Definition of the bed mattress product group
- 2 Certification of wood
- 3 Flame retardants
- 4 Biocides
- 5 Link to emissions for foam production
- 6 Waste treatment
- 7 Phthalates
- 8 Energy requirements
- 9 Renewable materials for fillings
- 10 Appropriate use of synthetic materials
- 11 Organic versus conventionally produced materials
- 12 Hazardous materials and substances
- 13 Low uptake under existing criteria
- 14 Other issues to be raised.

2.1 Existing definition of bed mattresses

In the existing EU Ecolabel criteria the product code assigned to bed mattresses is 014. The product group of bed mattresses is defined as “products that provide a surface to sleep or rest upon for indoor use”. These products consist of a cloth cover that is filled with materials which include latex foam, polyurethane foam and springs. The mattress may be supported by a bed structure in the form of a wooden base.

Products which are specifically identified as being included are spring mattresses, defined as upholstered bed bases consisting of springs, topped with fillings, as well as mattresses fitted with removable and/or washable covers.

Products specifically excluded include inflatable mattresses and water mattresses. Mattresses which fall under the medical equipment category, according to Council Directive 93/42/EEC, are also excluded. This encompasses devices specifically designed to specifically to provide medical benefit.

Proposal number: 1

Definition of bed mattress product group

Problem:

The existing definition of the bed mattress product group (described above) may not be completely appropriate nor inclusive of all mattress types available on the market. The definition above appears to be appropriate for sprung, non-sprung and certain ‘special feature’ mattresses. However other mattress types may exist and should be included.

The GPP scope must also be appropriate for mattresses obtained through public procurement mechanisms, which may have different compositions, construction and uses compared to mattresses purchased for private use. In particular, mattresses for hospitals may make up a substantial proportion of publically procured mattresses. Therefore it is essential that consideration is given to whether such

mattresses fall within the definition of 'medical equipment' and are therefore excluded or whether they can be included within the scope of the GPP criteria.

It is important that the scope is unambiguous as well as representative of the market as a whole.

Questions for stakeholders:

1a: Is the definition still appropriate and suitable for this product category, or you would suggest any modification?

1b: Are there any mattress types which are excluded by this definition which should now be included?

1c: Are differences in definition and scope necessary for the EU Ecolabel and GPP? How would you address this issue?

2.2 *Issues with existing criteria*

Several issues have been identified with the existing EU Ecolabel criteria which may discourage or prevent uptake. Each is described below in more detail.

Proposal number: 2

Criterion number: 5.1 - Certification of wood

Existing criterion: Wood – Sustainable forest management:

All virgin wood used in the product should conform to the following criteria:

- a) All virgin solid wood should be from forests which are sustainably managed (i.e. sustainable forest management).
- b) 60% of virgin solid wood from forests with certified third party forest certification schemes.
- c) Wood not certified must not originate from:
 - disputed land rights or primary old growth forests
 - illegal harvesting
 - uncertified high conservation value forests.

Declarations must be produced to confirm origin.

Problem:

The development of EU Ecolabel criteria for other product groups (specifically copying and graphic paper) have led to the implementation of a stricter criterion. This specifies that 100% of virgin fibres must be sourced from forests which are part of a third party certification scheme for sustainable management such as FSC, PEFC or equivalent. This indicates that the current level of 60% for mattresses is not stringent enough, and should be revised upwards. This may have particular bearing on 'Scandinavian' type mattresses which have a high wood content.

Questions for stakeholders:

2a: What proportion of wood in mattresses (approximately) arises from third party certified sustainable forests?

2b: Is it realistic to increase the proportion of certified wood in mattresses to greater than 60%? Up to what extent is this considered feasible?

2c: Are existing criteria sufficient to allow 'Scandinavian' type mattresses to apply?

Proposal number: 3**Criterion number: 9 - Flame retardants****Existing criterion: Flame retardants used in the entire mattress:**

Only reactive flame retardants are permissible: therefore all additive flame retardant containing mattresses are non-permissible, by default.

If any of the specified risk phrases are associated with the flame retardant prior to application, these must not apply once it is in its applied, reacted form.

No testing is required, confirmed by a declaration that no additive flame retardants are present and a declaration of which reactive flame retardants are present.

Problem:

Two issues exist related to flame retardants -

- 1) Changes are required to existing criteria on flame retardants so that they better reflect the legislative framework, EU Ecolabel regulation, technical feasibility and market acceptance.
- 2) The existing criteria for flame retardants appear to severely limit the prospect of awarding the EU Ecolabel within this product group. This is particularly true for additive flame retardants, which may not have risk phrases associated with them, but are not permissible due to the blanket ban on additive flame retardants. However, both the Austrian and German mattress criteria specify zero use of flame retardants.

Therefore this criterion needs to be amended to reflect these factors.

Questions for stakeholders:

3a: Is this criterion preventing manufacturers from applying for the EU Ecolabel?

3b: Is the distinction between 'reactive' and 'additive' flame retardants meaningful?

3c: Are the limitations on hazardous substances sufficient to restrict 'additive' flame retardants?

3d: Would separate criteria for the mattress casing (textiles) and filling (latex, PUR) be more appropriate?

3e: What other criteria might be used to restrict the use of flame retardants?

Proposal number: 4**Criterion numbers: 6.1 & 10 - Biocides****Existing criteria:****Textiles (6.1)**

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 by extraction (as appropriate) and analysis by gas-liquid chromatography with an electron capture detector. The limit value is 0.05 ppm.

Biocides in the final product (10)

Only biocidal products containing biocidal active substances defined in relevant EU Directive 98/8/EC are allowed (specifically Annexes I, IA and IB), and only those specified for use in bed mattresses (Annex V of Directive 98/8/EC).

This is confirmed by declaration of non-use, or providing a list of biocides used.

Problem:

Changes are likely to occur to existing criteria on biocides so that they better reflect the legislative framework, EU Ecolabel regulation, technical feasibility and market acceptance.

(Note: regulations for textiles are being revised in parallel elsewhere)

Questions for stakeholders:

4a: Which biocides are present in mattresses?

4b: If they are present, in which components/materials are they present?

4c: Should biocides be allowed or banned in mattresses?

Proposal number: 5

Criterion number: 2.7 - Emissions for foam production (blowing agents)

Existing criterion:

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

Declaration of non-use in production processing required.

Problem:

Improvements in production processes, particularly for foam, mean that existing criteria may be out of date - specifically with reference to emissions during production. Therefore better alignment with Best Available Techniques may be necessary, for example the production of latex foam in ESBR plants. Based on evidence from the corresponding BAT Reference Document^a these may go beyond a simple ban on certain substances, but also include limits of emissions of other substances.

Comparison with the more recent Blue Angel criteria indicates that this label does not entirely ban halogenated compounds, perhaps indicating that a complete ban on halogenated hydrocarbons may be too stringent?

Questions for stakeholders

5a: Which blowing agents are used in foam production?

5b: Is a complete ban on halogenated blowing agents appropriate?

5c: To what proportion and types of mattresses could tighter limits apply?

5d: Would taking other emissions into account unfairly penalize certain mattress types?

^a European Commission Reference Document, Best Available Techniques in the Production of Polymers, August 2007

2.3 *New/additional criteria*

The tables below summarises proposed additional criteria that are currently not reflected in the existing Ecolabel bed mattress criteria. These may be applicable to all or certain components of mattresses.

Proposal number: 6

Impact of waste treatment

Outline:

At end of life, mattresses are typically sent to landfill. However, mattresses account for a large proportion of the total waste sent to landfill (10% by volume according to one study for the South East of England), and this represents a large quantity of material which is not recovered.

Criterion 11, durability of mattresses, is loosely linked to this topic. The lifetime of a household mattress is expected to be 10 years (or equivalent for different applications). This is measured by loss of height (<15%) and firmness (<20%) after a standard test. A test certificate must be provided to confirm these criteria are met, according to text method EN1957, with comparison of firmness and height after 100 and 30,000 cycles.

Knowledge gaps:

What other waste treatment options (e.g. recycling) are available and appropriate? Does mattress type and composition affect this? What could be done to enable these treatments? Would increasing the lifespan of the mattress be an appropriate way to reduce waste?

Questions for stakeholders:

6a: What are the barriers to increased recycling/recovery of fibre and materials from bed mattresses?

6b: Which materials could already be recycled? How does this vary depending on mattress types?

6c: How can product design/manufacture allow for decreased waste production and greater recycling/recovery of fibre and materials?

6d: What other end-of-life options could be considered for bed mattresses?

Proposal number: 7

Restricting the use of phthalates

Outline:

At present no EU Ecolabel mattress criteria directly limit the use of phthalates. However, changes may be required to criteria so that they better reflect the legislative framework, EU Ecolabel regulation, technical feasibility and market acceptance.

Knowledge gaps:

The use of phthalates in mattresses has not been fully characterised, but they are typically used as plasticisers in PVC. Preliminary research indicates that they are specifically used in PVC for children's mattresses, but this may extend to cover other types. Confirmation is required.

Questions for stakeholders:

7a: Are phthalates still present in mattress covers? Which phthalates are most common in this use?

7b: Which type or component of mattresses contains phthalates? Which materials are they specifically present in?

7c: What are the alternatives?

7d: What would be the impact on EU Ecolabel licensing of having a complete ban in the criteria?

Proposal number: 8**Energy requirements – Lifecycle analysis****Outline:**

The production of bed mattresses is energy intensive. Reducing the fossil energy demand will also lower the carbon intensity of their production. Carbon impacts are also linked to the fuel mix and production efficiency of a country, making the location of manufacture important.

Knowledge gaps:

Understanding the key stages of the manufacture and disposal of a mattress is important in determining where the largest impacts occur; this is best achieved through a lifecycle assessment (LCA) approach.

This process will help us to understand:

- which stages/components are the most energy/co₂ intensive
- where these high impact manufacturing phases take place (both within and beyond the EU 27)
- what factors other than energy need to be considered.

A better understanding will be provided by the environmental information which will be gathered via the LCA technique during the technical analysis. This will be conducted once the initial phase of the revision process is underway. Input from stakeholders is welcome now, however.

Questions for stakeholders:

8a: Have the energy requirements of mattress manufacture been assessed? What studies on energy and other LCA issues can be regarded as relevant?

8b: Could a stringent minimisation of energy requirements have a negative effect on other impacts, such as restricting choice of materials, or specify manufacturing processes?

Proposal number: 9**Use of alternative materials based on renewable sources****Outline:**

Renewable-based materials may be used to substitute for the commonly-used materials based on petrochemicals, for instance in foam production. However, the benefits due to the use of renewable feedstock (e.g. natural oils such as castor, soya bean and sunflower) are not universally apparent. For instance substituting arable produce to produce bio-plastic precursors could have negative impacts on local ecosystems, biodiversity and food production.

Knowledge gaps:

Technical, economic and social feasibility of using these materials. Evidence of existing or potential uses of these materials in mattresses.

Impact on other assessment criteria if these materials are included.

Environmental benefits of replacing other fillings.

Questions for stakeholders:

9a: Which common materials used in mattresses are, or could be, sensibly replaced by renewable-based ones?

9b: How would the sustainability of mattresses be affected by the use of these materials? Would they generate sound benefits?

9c: Are additional criteria modifications (such as the incorporation of other substances) required for their use?

Proposal number:10**Appropriate use of 'natural' and 'synthetic' materials****Outline:**

Certain materials used in mattresses are currently based on either natural materials or on synthetic analogues of naturally occurring materials, e.g. latex foam.

The use of natural materials may seem to be more environmentally friendly: however, evidence suggests that this is not true in all cases. For instance, extending rubber tree plantations to produce natural latex could have negative impacts on local ecosystems, biodiversity and food production.

Inclusion of criteria which encourage the appropriate use of both natural and synthetic materials may be required to ensure the use of the most environmentally friendly option is used, whether it is natural or synthetic. If 'natural' products are specified, similar requirements to those for sustainable forestry products could be adopted, in which third party proof is required to meet the criterion.

Knowledge gaps:

Which materials present in mattresses have synthetic, semi-synthetic or naturally produced alternatives.

The environmental benefits of the different options, and how comparison can be made.

The impact on increasing demands for these materials (particularly natural-based materials).

Questions for stakeholders:

10a: Which common materials used in mattresses currently have a 'natural' or a 'synthetic' origin? In what proportion?

10b: Are there differences associated with mattress type and position in the market?

10c: How could the material supply-chain be managed to minimise environmental and social impacts?

Organic vs conventionally produced materials**Proposal number: 11****Outline:**

Organically produced materials may provide suitable and environmentally beneficial alternatives to certain conventionally produced (non-organic) materials in a mattress. It may be appropriate to specify the inclusion of organically produced materials or substances.

Knowledge gaps:

What materials in mattresses could be substituted with organically produced alternatives, such as cotton or wool based coverings.

Sound evidence of the benefits of organic over conventionally produced materials – what are these benefits?

Questions for stakeholders:

11a: Are any components of mattresses organically produced or suitable for organic production?

11b: Due to the materials involved, is this evaluation more appropriate for inclusion in the revision of criteria for textiles? This will be taken into consideration as part of the revision process.

Hazardous materials and substances

Proposal number:12

Limiting the use of hazardous materials and substances

Outline:

Recent changes to 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 (2) OJ L 353, 31.12.2008, p. 1. (2), 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"

Hazardous materials and substances can be classified through the risk phrases (provided in Appendix 2).

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.

Knowledge gaps:

The impact that this will have on mattresses eligible for the EU Ecolabel.

What types of mattress could be affected more than others, and how.

Questions for stakeholders:

12a: Are hazard statements/risk phrases applicable to any existing substances which are widely used in bed mattresses?

12b: Are there any substances which would be wholly restricted by this list and require substitution with substances that would produce other negative environmental impacts?

12c: What risk phrases/hazard statements should be the subject of derogation, and why?

2.4 Additional discussion points

Proposal number: 13

Low uptake of EU Ecolabel under existing criteria

As stated above, the uptake of the EU Ecolabel for mattresses is considerably lower than for many other product groups. It is important that the reasons for this are understood, and the revised criteria take these factors into account.

Knowledge gaps:

The specific reasons for low uptake of this product group when compared to others in the EU Ecolabel scheme. Are they specifically related to the criteria or to other factors?

Industry awareness of the EU Ecolabel.

13a: Prior to this process, were you or your organisation aware of the EU Ecolabel for mattresses? Were you aware of other ecolabels for this product?

13b: Please answer the relevant question below, depending on your previous involvement with the EU Ecolabel:

- 1) If your organisation had previously applied for the EU Ecolabel: What were your reasons for applying? Would stricter criteria influence this decision?
- 2) If your organisation has considered applying or had previously enquired about applying for the EU Ecolabel: What were your reasons for considering applying? What stage did you reach? What prevented you taking the application further? How would revision of the criteria influence this?
- 3) If your organisation has not considered applying for the EU Ecolabel: Are there reasons for not considering applying? How did the existing criteria influence this decision? Did you apply for other schemes? Why?

Other points

Proposal number: 14

Additional comments/feedback

Additional feedback from stakeholders is welcomed on issues not highlighted above. Therefore scope is provided for comments about the existing criteria, and how they could be improved within the scope of EU Ecolabel.

Comments will be collated, and common issues identified, to provide further evidence during the revision process.

14a: Additional comments and feedback

3 Summary and next steps

As stated above, this stakeholder consultation forms the first step of the process to revise the EU Ecolabel criteria and define the GPP criteria for mattresses. Gathering the views from relevant stakeholders is important to ensure that these criteria are consistent and applicable to the industry.

We would highly value your input on the points above. Feedback can be provided through the form reported in **Appendix 3**, which has sections for each of proposals above. A word copy of the form is provided in the website of the project: <http://susproc.jrc.ec.europa.eu/mattresses/>. Please send the form back to adrian.chapman@oakdenehollins.co.uk (CC: mauro.cordella@ec.europa.eu). We would appreciate that this document is returned by the **16th October 2011** to ensure that all comments can be fully considered within this process.

Information supplied will remain confidential and anonymous, and will be used by IPTS and Oakdene Hollins in the forthcoming process of identifying where changes are required to the scope of the product group and the individual criteria.

The draft criteria will be discussed at a working group meeting on mattresses in February 2012, which stakeholders will be invited to attend.

Appendix 1 – Summary of existing criteria

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 mgr/m ³ (dependent on testing method)	EN ISO 13181-1 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 2002/371/EC of 15 May 2002 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 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 the supplier or manufacturers, verified by auditor

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.	Declaration of the supplier or manufacturers, verified by auditor
3.2	Galvanisation	Wire and springs must not be coated with a galvanic metallic layer	Declaration of the supplier or manufacturers, verified by auditor

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 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 should be from forests which are sustainably managed (Sustainable Forest Management)</p> <p>b) 60% of virgin solid wood 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>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 a E1 quality according to EN 622-1.</p> <p>Fibreboard – emissions of formaldehyde shall not exceed 50% of the threshold value that would allow it to be classified as a class A1 quality according to EN 622-1. Exceptions exist if less than 50% of wood or wood material in product.</p>	<p>Evidence that wood based materials comply with EN 622-1</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 organotin 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	Various chemicals (listed) 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.	Appropriate documentation

Criterion number	Applicable to	Criteria	Compliance
6.4	Bleaching agents	Chlorine agents are excluded for bleaching yarns, fabrics and end products. (Not applicable to man-made cellulose fibres)	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	As 1.4 Latex	As 1.4 Latex
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, and are made of regenerated wool or more than 20% silk. This does not apply to white products, or products which are neither dyed or 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 or 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 or 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, harmful to the reproductive system, genetically harmful, toxic (categorised by relevant risk phrases).</p>	Declaration of non-use

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).	Tested 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 (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 criteria</p>

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	<p>The lifetime of a household mattress is expected to be 10 years; this will vary depending on application.</p> <p>Adult mattress – Loss of height <15%, loss of firmness <20%</p> <p>Baby mattress – Loss of height < 15%, loss of firmness <20%</p>	Test report verifying these criteria are met using EN1957

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, 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.	Declaration of compliance, along with sample of packaging with label

Appendix 2 – Hazardous substances risk phrases

Hazard statement	Associated risk phrase(s)
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	R65
H311 Toxic in contact with skin	R65
H330 Fatal if inhaled	R23; R26
H331 Toxic if inhaled	R23
H340 May cause genetic defects	R23
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
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; R39/24; R39/25; R39/26; R39/27; R39/28
H371 May cause damage to organs	R68/20; R68/21; R68/22
H372 Causes damage to organs through prolonged or repeated exposure	R48/25; R48/24; R48/23
H373 May cause damage to organs through prolonged or repeated exposure	R48/20; R48/21; R48/22
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 harmful 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 breathing difficulties if inhaled	R42
H317: May cause allergic skin reaction	R43

Appendix 3 – Stakeholder comments form

Name of the organization	Contact person	e-mail
Question Nr.	Feedback	