Revision of European Ecolabel Criteria for Bed Mattresses

2nd Ad-hoc Working Group Meeting

25-26 September 2012, Brussels

Joint Research Centre,

Institute for Prospective Technological Studies

IE – Petten, The Netherlands

Institute for Energy

IRMM – Geel, Belgium

Institute for Reference Materials and Measurements

ITU – Karlsruhe, Germany

Institute for Transuranium Elements

IES/ IHCP/ IPSC – Ispra, Italy

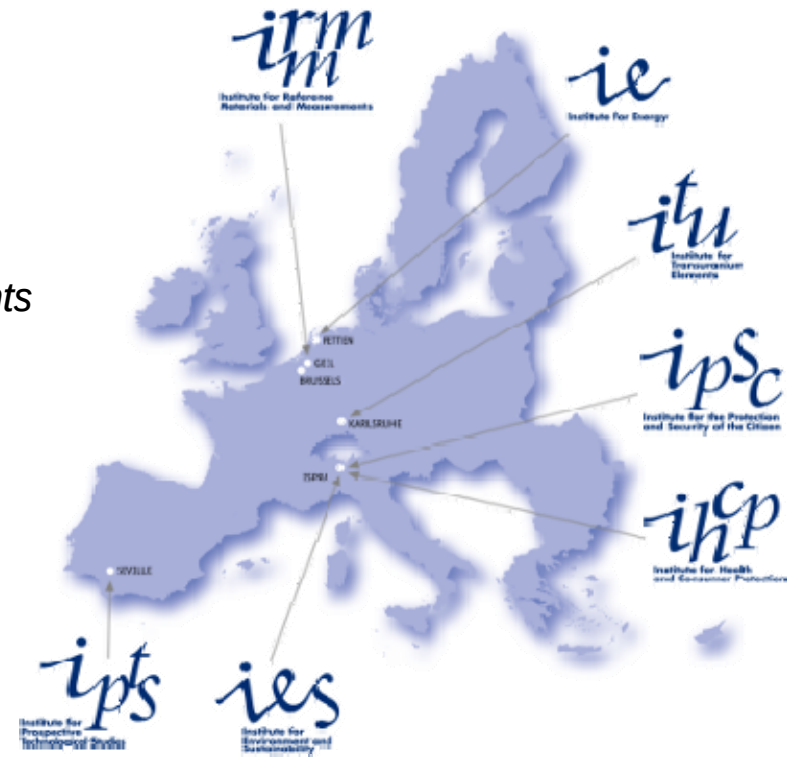
Institute for Environment and Sustainability

Institute for Health and Consumer Protection

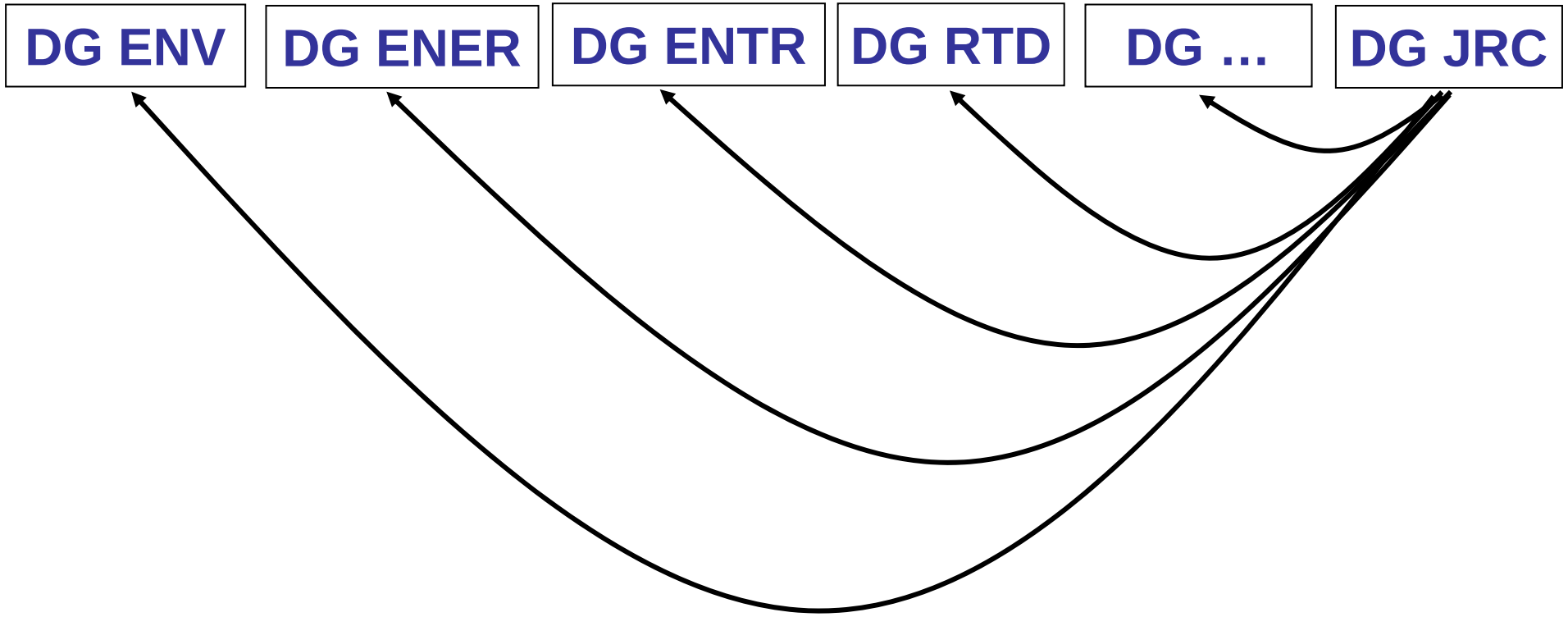
Institute for the Protection and Security of the Citizen

IPTS – Sevilla, Spain

Institute for Prospective Technological Studies



Joint Research Centre in the context of the European Commission:



Activities in support of Product Policy

*IPTS supports the **development and implementation of environmental product policies**, amongst them the EU Ecolabel Regulation.*

*Analysis of each product group with focus on **techno economic** and **environmental** aspects*

*Develop **criteria and implementing measures until the stage of adoption** with input from stakeholders*

EU Ecolabel

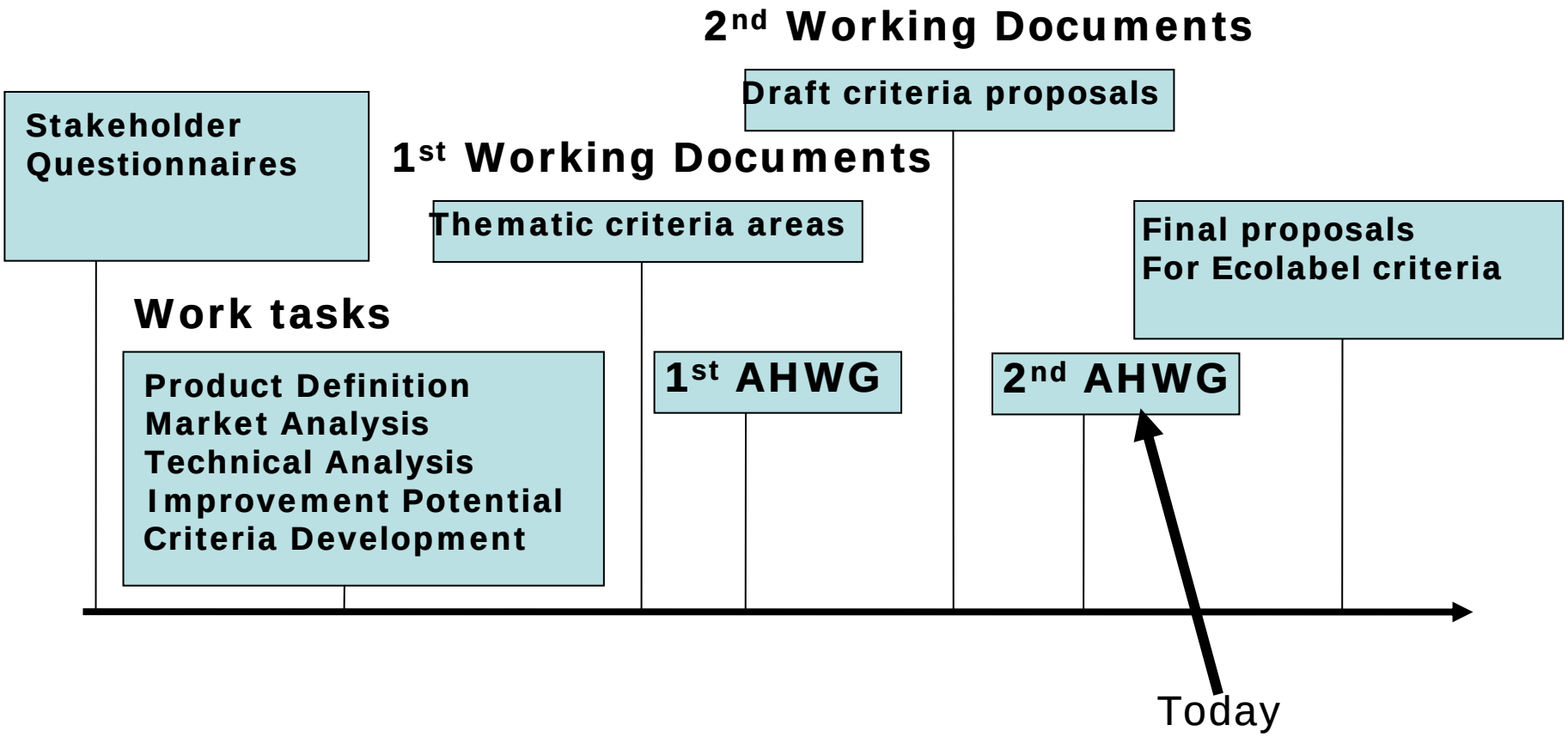
Regulation (EC) No 66/2010 on the EU Ecolabel

A voluntary market instrument, third party verified

Criteria should be designed to reflect and to recognise the best performing 10-20% products in the market.

The focus shall be on the most significant environmental impacts and the proposed criteria shall be science based and based on a whole life cycle approach.

Criteria development process



Today's 2nd AHWG

Aim: To discuss, obtain feedback and seek consensus on the detail of the draft criteria proposals

- *Revised **technical background** to criteria development*
- *Discussion of **new and revised criteria areas** one by one*
- ***Questions and requests for input** from stakeholders*
- ***Criteria will be updated based on input and discussions***

Meeting will be minuted according to 'Chatham House' rules

Building on AHWG1 (March 2012)

1. Materials

a. Design of the mattress (NEW)
b. Use of renewable based materials (NEW)
c. Use of organic materials (NEW)
d. Use of recycled materials (NEW)
e. Use of certified and sustainable materials (Revision / NEW)
f. Energy and LCA requirements (NEW)
g. Production of latex and PUR foams (Revision)
h. Production of metal springs (Revision)
i. Production of textiles (Revision)

Criteria development process for bed mattresses

1. ***Stakeholders can provide comments*** *on working document* *1 week after the meeting (**4th October 2012**)*

2. ***Draft final criteria proposals*** *will be prepared and published* *4 weeks ahead of the November EUEB meeting*

3. *Again* ***4 weeks to comment*** *on draft final criteria proposals*

4. *Draft final criteria proposals submitted for* ***interservices consultation*** *(December 2012)*

5. ***EUEB vote*** *on final criteria set (March 2013)*

Minutes and background documents

Published on the dedicated website:

http://susproc.jrc.ec.europa.eu/mattresses

Content of the presentation

1. Background information
2. Identification of criteria areas of discussion
3. Discussion on single criteria areas

Revision of European Ecolabel Criteria for Bed Mattresses

Session 1: Background information

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Joint Research Centre, Institute for Prospective Technological Studies

Content

- Composition of a typical bed mattress
- Categorization of the product group
- Market analysis
- The “green market”

Composition of a typical bed mattress

1. **Core:** it provides support and its composition is generally used to classify mattresses (e.g. latex foam, PUR foam, springs or wool/coconut fibres in baby mattresses).

2. **Shell** (or padding/wadding): it is a layer around the core used to refine the overall properties of the mattress (e.g. equalizing weight distribution, allowing better air flow or protecting the core).

3. **Tick** (or ticking): it is the outer cover of the mattress and provides a comfortable and protective top layer.

Wooden bed bases (Scandinavian bed Mattresses): Hybrid bed systems consisting of a wooden frame with integrated springs, with mattress fixed on top of this (normally with a sprung core).

Spring mattresses: Upholstered bed base consisting of springs, topped with fillings, as well as mattresses fitted with removable and/or washable covers

Categorization of the product group

PRODCOM and Combined Nomenclature classification

Database	Codes	Description	Abbreviation Used in this presentation
PRODCOM	**31031100**	Mattress supports (including wooden or metal frames fitted with springs or steel wire mesh, upholstered mattress bases, with wooden slats, divans)	**Supports**
CN	**94041000**	Mattress supports for bed frames (excl. spring interiors for seats)	
PRODCOM	**31031230**	Mattresses of cellular rubber (including with a metal frame; excluding water-mattresses, pneumatic mattresses)	**Latex**
CN	**94042110**	Mattresses of cellular rubber	
PRODCOM	**31031250**	Mattresses of cellular plastics (including with a metal frame; excluding water-mattresses, pneumatic mattresses)	**PUR**
CN	**94042190**	Mattresses of cellular plastics	
PRODCOM	**31031270**	Mattresses with spring interiors (excluding of cellular rubber or plastics)	**Spring**
CN	**94042910**	Mattresses with spring interiors	
PRODCOM	**31031290**	Other mattresses (excluding with spring interiors, of cellular rubber or plastics)	**Other**
CN	**94042990**	Mattresses, stuffed or internally filled with any material (excl. cellular rubber or plastics, with spring interior, and pneumatic or water mattresses and pillows)	

Market analysis 1

Production:

- **48 millions of bed mattresses** sold in 2010 the EU-27 (67 million units including mattress supports).

- **EUR 3.8 billion** (EUR 5 billion including mattress supports).

Mattress type	Sold Volume	Market Value	Key player
Spring	37 %	45 %	UK, Germany
PUR	32 %	31 %	German, Poland, France
Latex	13 %	13 %	Italy, France and Poland
Other	18 %	11 %	Italy, France and Poland

Source: own elaboration from Eurostat-PRODCOM data for 2010

Market analysis 2

- **Wide number of SMEs.**
- **Intra-EU imports: EUR 1 billion** (EUR 1.4 billion with mattress supports)
- **Intra-EU exports: EUR 1.3 billion** (EUR 1.6 billion with mattress supports)
- **Extra-EU trade:** approximately **one tenth** of the **overall trade.**
- Import/export figures significantly higher for **PUR mattresses**

The “Green Market”

Recent trend towards high-end, ‘green’ mattress products.

Ecolabel name	Region	Product group	Date of adoption of the latest version	Known licences/ companies awarded*
EU Ecolabel	EU	Mattresses	July 2009	3
Blue Angel	Germany	Mattresses	April 2010	4
Austrian Ecolabel	Austria	Mattresses	Jan 2011	4
Nordic Swan	Scandinavia	Furniture	March 2011 (v. 4)	5
Green Mark	Taiwan	Mattresses	September 2011 (v. 1.0.1)	14 (products)

limited uptake of the EU Ecolabel:

- lack of clarity and difficulties in meeting existing criteria
- cost and uncertainty in applying
- purchaser awareness/demand

Product group	Nr. of products licensed with the EU Ecolabel	Nr. licenses / EUR billion of apparent consumption
Bed Mattresses	25-133	7.14-38
Textiles	4665	37.62

Questions?

Revision of European Ecolabel Criteria for Bed Mattresses

Session 2: Technical analysis and identification of criteria areas

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Content

- Approach description
- LCA - Sources of information considered
- #1: LCA study from Boura (Greece)
- #2: LCA study from Climact (Belgium)
- #3: LCA study from ADEME (France)
- #4: Carbon footprint study from FIRA (UK)
- **LCA summary and identification of key env issues**
- Art. 6.6 and 6.7 of the EU Ecolabel Regulation
- Stakeholders consultation
- Issues proposed for discussion
- Outlook on existing criteria

Approach description

Collection of **life cycle information** on bed mattresses

Existing **criteria analysis** and **background information**

Identification of **key environmental issues**

Stakeholders consultation

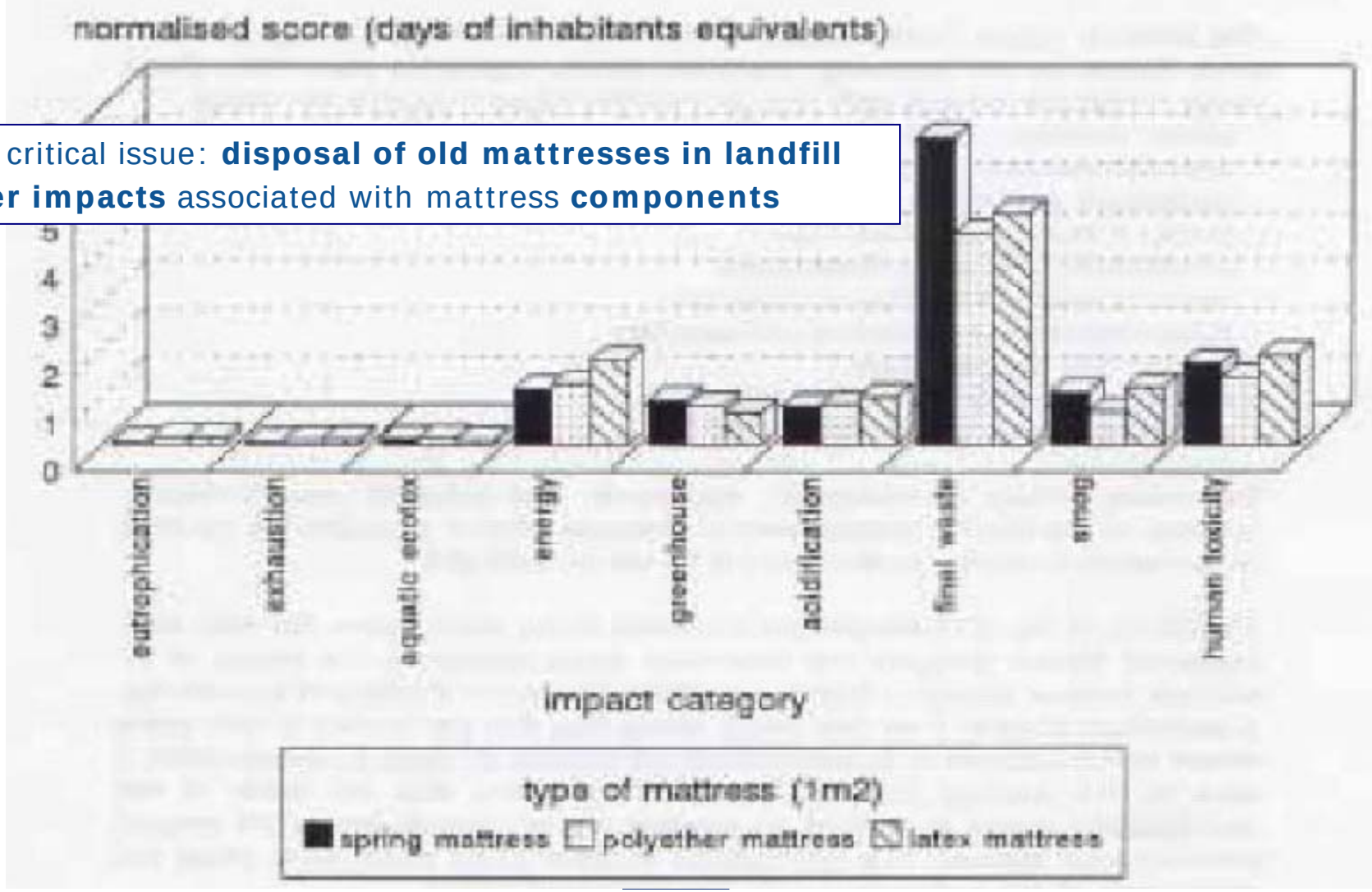
Discussion of new issues and revision of existing criteria

LCA – Sources of information considered

Name of the study, author(s) and year	Scope, Functional unit, System boundaries	Environmental parameters considered
A.D. Boura (HELCANET, Greece), 2004 "EU Eco label for Bed Mattresses. The Greek LCA study - Establishment of ecological criteria"	4 types of mattresses (PUR foam, latex foam, spring interior and Scandinavian mattress) 1m^2 of mattress, fit for use Cradle-to-grave	12 impact categories – normalized scores
Climact, Vito and Belgian Department for Health, Food Chain Safety and Environment, 2011 "Mattresses LCA – Final Presentation"	9 mattress value chains representative for 4 different mattress types. 1 adult mattress (2m x 0.9m) Cradle-to-use	ReCiPe's 18 midpoint indicators - Normalized scores
FIRA (UK), 2011 "Furniture Carbon Footprinting"	19 double mattresses, including spring and foam mattresses A double mattress Cradle to gate	Greenhouse gases emissions
Agence de l'Environnement et de la Maîtrise de l'Energie (ADEME), 2010 "Rapport de synthese PROPILAE (PROjet PILote pour l'Affichage Environnemental) des produits d'ameublement**"**	1 PUR mattress (12 years); 2 spring mattresses (16 and 12 years, respectively); 1 latex mattress (more uncertain information). 1 single mattress used for 1 year Cradle to grave (impacts from transports not fully taken into account)	15 impact categories – normalized scores

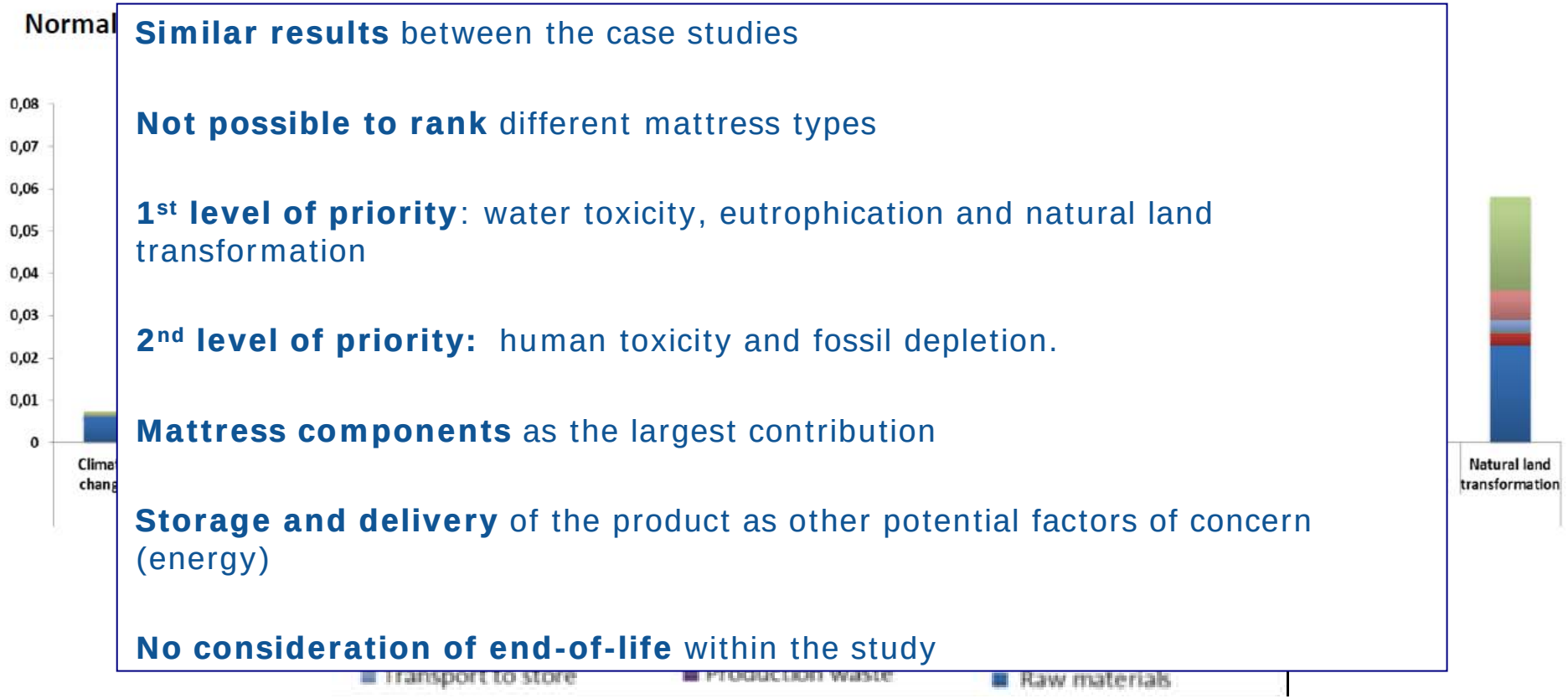
#1: LCA study from Boura (Greece)

Most critical issue: **disposal of old mattresses in landfill**
Other impacts associated with mattress **components**



#2: LCA study from Climact, Vito and Belgian Ministry for Environment

Results and discussion



Similar results between the case studies

Not possible to rank different mattress types

1st level of priority: water toxicity, eutrophication and natural land transformation

2nd level of priority: human toxicity and fossil depletion.

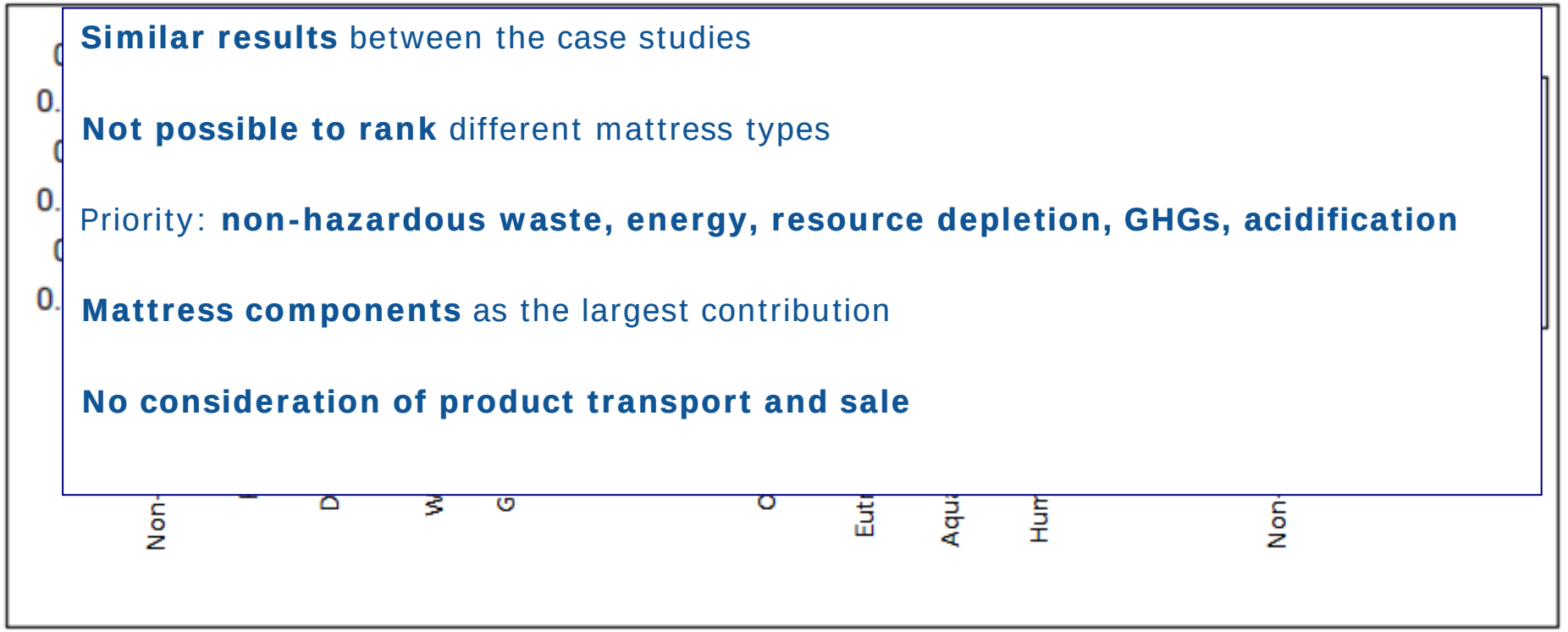
Mattress components as the largest contribution

Storage and delivery of the product as other potential factors of concern (energy)

No consideration of end-of-life within the study

#3: LCA study from ADEME (France)

Results and discussion



Similar results between the case studies

Not possible to rank different mattress types

Priority: **non-hazardous waste, energy, resource depletion, GHGs, acidification**

Mattress components as the largest contribution

No consideration of product transport and sale

#4: LCA study from FIRA (UK)

Results and discussion

GHG Emissions ($kgCO_2eq$)		Contribution to total GHG emissions (%)								
		Timber & Board	Foams & fillings	Textiles	Metal	Plastic	Packaging	Transport	Utilities	Other
min	43	0	3	1	0	0	1	1	1	0
max	164	0	82	36	54	6	7	3	24	1
Avg.	**80**	**0**	**44**	**14**	**29**	**1**	**3**	**2**	**7**	**0**

Only GHGs

Mattress components = main contribution

IPTS LCA Study

- **Goal:** identifying hot-spots
- **Scope:** 3 types of bed mattresses (Latex, PUR, Springs)
- BoM and metadata from producers
- Background information from LCI databases
- **Sensitivity analysis** on key product alternatives
- **Full life cycle** evolution
- **End of Life:** landfill (50%) + incineration (50%)
- **FU:** 1m^2 of sleeping surface
- **Recipe** impact assessment method (18 midpoints + 3 endpoints)

Example: Mattress made of synthetic latex

Impact category	Unit	Raw materials	Packaging	Waste from production	Energy for production	Energy for storage	Transport	EoL
Climate change	%	80.6	2.1	1.7	5.6	0.7	1.2	8.1
Ozone depletion	%	75.6	0.8	1.1	14.6	1.6	5.4	0.9
Human toxicity	%	81.1	1.0	1.6	13.1	1.7	0.9	0.6
Photochemical oxidant formation	%	89.1	1.7	1.7	2.8	0.3	2.3	2.1
Particulate matter formation	%	92.0	0.9	1.5	2.5	0.3	1.1	1.7
Ionising radiation	%	68.6	1.4	1.3	23.9	3.1	1.3	0.4
Terrestrial acidification	%	94.9	0.6	1.4	1.8	0.2	0.6	0.5
Freshwater eutrophication	%	65.6	1.0	1.3	12.8	1.7	0.4	17.2
Marine eutrophication	%	95.4	0.2	1.4	0.7	0.1	0.2	1.9
Terrestrial ecotoxicity	%	97.2	0.1	1.4	0.7			
Freshwater ecotoxicity	%	88.9	0.6	1.5	7.6			
Marine ecotoxicity	%	78.6	1.2	1.6	15.4			
Agricultural land occupation	%	98.1	0.4	1.4	0.1			
Urban land occupation	%	92.4	0.8	1.5	1.9			
Natural land transformation	%	81.1	0.9	1.8	10.0	1.1	5.0	0.0
Water depletion	%	95.4	0.3	1.5	1.2	0.2	0.2	1.4
Metal depletion	%	201.9	2.8	3.5	9.9	1.2	10.0	-129.2
Fossil depletion	%	89.6	2.1	1.7	4.7	0.5	1.1	0.3
Human Health	%	83.5	1.7	1.7	5.3	0.6	1.2	6.1
Ecosystems	%	89.2	1.2	1.6	2.9	0.3	0.7	4.1
Resources	%	89.6	2.1	1.7	4.7	0.5	1.1	0.3

For all the mattresses:

- Importance of materials
- Secondary hot-spots

Sensitivity analysis

- Trade-offs between natural and synthetic latex
- Slight preference for MDI (rather than TDI) in the PUR production
- Higher impacts for stainless steal springs
- Uncertainty on environmental weight of production energy
- Benefits from diversion from landfill

LCA summary and identification of key environmental issues

NO environmental ranking between mattresses

Most **critical aspects** associated with the lifecycle of a mattress:

1. Sourcing, production and use of **components** (mainly core materials but also textiles)

2. **disposal** of the product itself in landfill

3. **storage and delivery** of the product

Not yet included within the existing EU Ecolabel criteria

Regulation EC/66/2010

EU Ecolabel legislation → restrictions on the use of hazardous substances and preparation mixtures (Art. 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 (Art. 6.7 of the EU Ecolabel regulation).

For specific categories of goods containing substances referred to in paragraph 6, and only in the event that it is not technically feasible to substitute them as such, or via the use of alternative materials or designs, or in the case of products which have a significantly higher overall environment performance compared with other goods of the same category, the Commission may adopt measures to grant derogations from paragraph 6. No derogation shall be given concerning substances that meet the criteria of Article 57 of Regulation (EC) No 1907/2006 and that are identified according to the procedure described in Article 59(1) of that Regulation, present in mixtures, in an article or in any homogeneous part of a complex article in concentrations higher than 0,1 % (weight by weight). Those measures, designed to amend non-essential elements of this Regulation, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 16(2).

Stakeholders consultation

#	Issue
1	*Definition of bed mattress product group*
2	*Criterion number: 5.1 - Certification of wood*
3	*Criterion number: 9 - Flame retardants*
4	*Criterion numbers: 6.1 & 10 - Biocides*
5	*Criterion number: 2.7 - Emissions for foam production (blowing agents)*
6	*Impact of waste treatment*
7	*Restricting the use of phthalates*
8	*Energy requirements – Lifecycle analysis*
9	*Use of alternative materials based on renewable sources*
10	*Appropriate use of 'natural' and 'synthetic' materials*
11	*Organic vs conventionally produced materials*
12	*Limiting the use of hazardous materials and substances*
13	*Low uptake of EU Ecolabel under existing criteria*
14	*Additional comments/feedback*

Identification of issues for discussion!

Issues for discussion (1)

Scope

1. Materials

a. Design of the mattress (NEW)
b. Use of renewable based materials (NEW)
c. Use of organic materials (NEW)
d. Use of recycled materials (NEW)
e. Use of certified and sustainable materials (Revision / NEW)
f. Energy and LCA requirements (NEW)
g. Production of latex and PUR foams (Revision)
h. Production of metal springs (Revision)
i. Production of textiles (Revision)

Issues for discussion (2)

2. Manufacture and storage

a. Energy performance (NEW)
b. Best industrial practices (NEW)
c. EMS/CSR (NEW)

3. Substances of concern

a. Horizontal approach based on art. 6.6 and 6.7 (NEW)
b. Restrictions on foam materials (Revision)
c. Flame retardants (Revision)
d. Biocides (Revision)
e. Phthalates (NEW)

Issues proposed for discussion (3)

4. Fitness-for-use

a. Warranty coverage (NEW)
b. Technical performance (NEW)

5. Packaging

a. Appropriateness of the criterion (Revision)

6. End of Life

a. Diversion from landfill (NEW)
b. Design for disassembling and recovery of materials (NEW)

7. Environmental performance

a. Energy and Life cycle performance of the product (NEW)

8. Other issues

a. Consistency of the criteria (Revision)
b. Information in the box 2 of the label (Revision)

Outlook on existing criteria (1)

1e = sustainable Sourcing
1g = production of foams
3b = substances of concern
3a = horizontal issue on hazardous substance

1h = production of metal springs

Criteria area	Issue
1. Latex	1.1. Extractable heavy metals
	1.2. Formaldehyde
	1.3. Volatile organic compounds (VOCs)
	1.4. Dyes, pigments, flame retardants and auxiliary chemicals
	1.5. Metal complex dyes
	1.6. Chlorophenols 1.7. Butadiene 1.8. Nitrosamines
2. PUR	2.1. Extractable heavy metals
	2.2. Formaldehyde
	2.3. Volatile organic compounds (VOCs)
	2.4. Dyes, pigments, flame retardants and auxiliary chemicals
	2.5. Metal complex dyes
	2.6. Organic tin
	2.7. Blowing agents
3. Wire and springs	3.1. Degreasing
	3.2. Galvanisation
4. Coconut fibres	If rubberised, latex used must comply with criteria for latex foam
5. Wooden material	5.1. Sustainable forest management 1e
	5.2. Formaldehyde emission from untreated raw wood-based materials

Outlook on existing criteria (2)

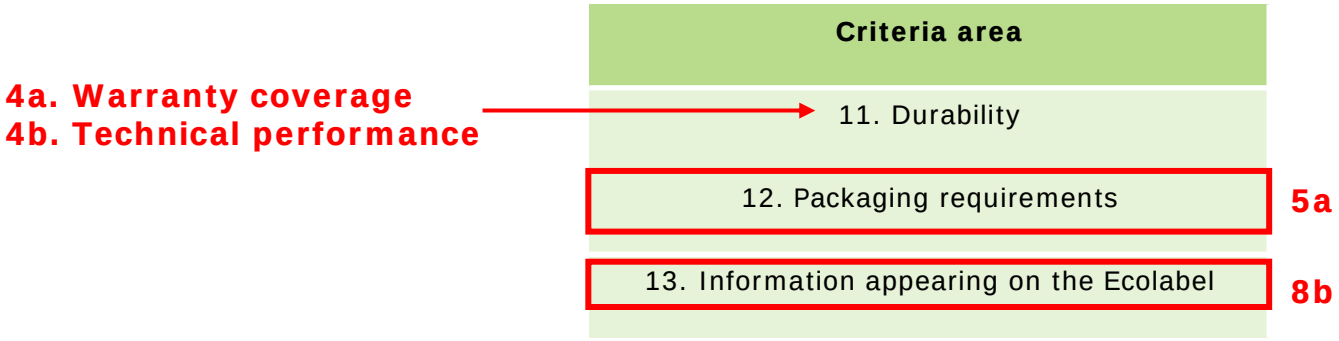
Criteria area	Issue
6. Textiles (fibres and fabric)	6.1. Biocides
	6.2. Auxiliary chemicals
	6.3. Detergent, fabric softeners and complexing agents
	6.4. Bleaching agents
	6.5. Impurities in dyes
	6.6. Impurities in pigments
	6.7. Chrome mordant dyeing
	6.8. Metal complex dyes
	6.9. Azo dyes
	6.10. Dyes that are carcinogenic, mutagenic or toxic to reproduction
	6.11. Potentially sensitising dyes
	6.12. Colour fastness to perspiration (acid, alkaline)
	6.13. Colour fastness to web rubbing
	6.14. Colour fastness to dry rubbing
7. Glues	
8. VOC and SVOCs on the entire mattress	
9. Flame retardants used in the entire mattress	3c
10. Biocides in the final product	3d

1i = production of textiles

3a = horizontal issue on hazardous substance

3e = Phthalates

Outlook on existing criteria (3)



2b. Best industrial practices
6a. Diversion from landfill
6b. Design for disassembling

→ **other criteria areas**

8a. Simplification and consistency of the criteria → general rearrangement

Questions?

Revision of European Ecolabel Criteria for Bed Mattresses

Session 3: Scope definition and discussion on criteria areas

2nd Ad-hoc Working Group Meeting
25-26 September 2012, Seville

Joint Research Centre, Institute for Prospective Technological Studies

Proposals:

1) Scope definition
2) Use of Certified and Sustainable Materials
3) Production of Latex foam
4) Production of PUR foam
5) Production of metal Springs
6) Production of Textiles (fibres and fabrics)
7) Industry Best Practice
8) Horizontal approach to hazardous substances
9) Restriction on specific substances for Latex and PUR
10) Flame retardants
11) Biocides
12) Phthalates
13) Warranty coverage during the lifespan of the mattress
14) Requirements on the technical performance
15) Appropriateness of a criterion on packaging
16) Implementing a collection system to divert from landfill
17) Design for disassembling and recovery of materials
18) Consistency of the criteria
19) Information on the label

Proposal#1

Scope definition

EU Ecolabel's Scope Definition (1)

Existing definition:

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).*

EU Ecolabel's Scope Definition (2)

1. **Bed bases and hybrid type products** closely linked to furniture → move them to **furniture** and **focus on mattress**
2. **Mattress as whole product → clarify the definition**

NEW DEFINITION

1. *The product group 'bed mattresses' **shall comprise** products providing 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 or designed for free standing. Materials filling and covering** the bed mattresses may include latex and polyurethane foam, metal parts, fibres and fabrics.*

2. *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).*

Criteria area 1.

Materials

Materials = main contributor to the overall lifecycle impacts

Importance of **core materials and fibres**

Issues of concern include: energy consumption, climate change, eutrophication, ecotoxicity, land occupation and transformation, particulate emission, toxicity.

Proposal 2 – Use of Certified and Sustainable Materials (Sourcing more eco-friendly materials)

Proposal 3 – Production of Latex foam

Proposal 4 – Production of PUR foam

Proposal 5 – Production of metal Springs

Proposal 6 – Production of Textiles

Proposal 2 – Use of Certified and Sustainable Materials (Sourcing more eco-friendly materials)

It applies to:

Wood (if wooden bed bases are kept) → similar wording to Criteria 3 for the EU Ecolabel for Copying and Graphic Paper

Natural Latex → 10% sourced from FSC certified sources

Natural PUR foam → 10% of vegetable oils from sustainable sources

Wood: sustainable forest management (Revision of Criterion 5.1)

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.

Latex from natural or synthetic sources. Natural latex from the sap of the gum tree

World supply of natural latex: 12 million tonnes (rough estimation)
Sustainably sourced latex (FSC): 0.2% (rough estimation)

Benefits:
- no International Labour Organisation core conventions breached (e.g. no child or forced labour),
- no genetically modified materials used,
- rubber harvested in a sustainable manner

If nat. latex used → 10% from FSC; limit could be raised in the future

Latex: certified sustainable sourcing of natural latex (NEW)
At least 10% by weight of any naturally sourced latex in the product must be sourced from forests certified under the FSC's sustainable latex scheme. *Assessment and verification:* Declaration by applicant, with supporting documentation to verify source and quantity of sustainable natural latex used.

PUR foam produced from fossil/natural feedstock

If vegetable oils used → 10% Palm oil from RSPO and 10% Soy bean oil from RTRS

Raised in the future or extended to other oils?

PUR foam: certified sustainable sourcing of vegetable oils (NEW)

A portion of the vegetable oils used for the production of PUR foams must be from sustainably sourced.

Vegetable oil	*Ratio of sustainable sourced material (% by weight)*	*Standards*
Palm oil	**10%**	**RSPO**
Soy bean oil	**10%**	**RTRS**

Assessment and verification:

Declaration by applicant, with supporting documentation to verify source and quantity of sustainable natural latex used

Proposal 3 – Production of Latex foam

Aim: **to limit emissions in water** from the latex foam production

Alignment with the Blue Angel Scheme for footwear

Apply to **synthetic and natural latex**

BREF on polymers (2007) → Information on synthetic rubber. Not considered appropriate for synthetic latex foams.

Latex foam production: water emission limits (NEW criterion)

The wastewater from the processing of natural rubber and/or manufacturing of synthetic latex rubber shall not exceed the following values upon discharge into a water body;

- **2 mg/l for zinc,**
- **0.5 mg/l for lead,**
- **1 mg/l for AOX,**
- **0.1 mg/l for benzene and its derivatives,**
- **COD of 150 mg/l** or at least 90% reduction compared with the inflow on a monthly average,
- **20 mg/l for total nitrogen (N_{total}) and 2 mg/l for total phosphorous (P_{total}) as well as a value of 2 for the toxicity in fish eggs (GEi).**

This requirement **shall not apply** to approved discharges into a municipal sewage treatment plant that meets at least the requirements of Council Directive 91/271/EEC concerning urban waste water treatment, dated 21st May 1991.

Assessment and verification:

Verification of waste water emission using the standard testing protocols for each of the relevant discharge types (described below or equivalent) from the latex foam supplier. Testing will occur every six months to ensure continuing compliance.

Proposal 4 – Production of PUR foam

Polyurethane = polyols + diisocyanates (+ others)

Diisocyanates: toluene diisocyanates (TDI) and/or methylene diphenyl diisocyanates (MDI)

TDI: fatal if inhaled (H330 - acutely toxic), suspected carcinogen (H351), skin and eye irritant (H315, H319), and harmful to aquatic life with long lasting effects (H412).

MDI: harmful (H332), suspected carcinogen (H351), and skin and eye irritant (H315, H319).

MDI = less hazardous, increasing inherent safety of PUR manufacture (equivalent environmental performance)

BREF on Large Volume Organic Chemicals (2003) → Emission ranges related to the production of TDI and MDI.

→ Restriction on TDI + emission limits for diisocyanates

PUR foam production: Precursors (NEW criterion)

Toluene diisocyanate (TDI) shall not be used as a precursor for PUR foam. Emission values reported in the table below (limits to be discussed with stakeholders) shall be respected during the production of diisocyantes (values obtained from the Bref on Large Volume Organic Chemicals):

Wastewater	TDI (20% threshold)	MDI (20% threshold)	TDI (Bref)	MDI (Bref)
Volume (m^3/t)	3	0.3	1-10	0.1-1
COD (kg/t)	3	< 0.1	1-10	< 0.1
AOX (g/t)	30	0.3	10-100	0.1-1
Air emissions	**TDI (20% threshold)**	**MDI (20% threshold)**	**TDI (Bref)**	**MDI (Bref)**
NOx (mg/m^3)	49.6	NA	12-200	NA
SO_2 (mg/m^3)	<20	NA	<20	NA
CO (mg/m^3)	27.6	NA	<2-130	NA
Total C (mg/m^3)	7.8	NA	<1-35	NA
Dust (mg/m^3)	1.8	NA	<1-5	NA
PCDD/F (mg/m^3)	NA	NA	NA	NA

Assessment and verification:

Verification of waste water emission using the standard testing protocols for each of the relevant discharge types (described below or equivalent) from the supplier.

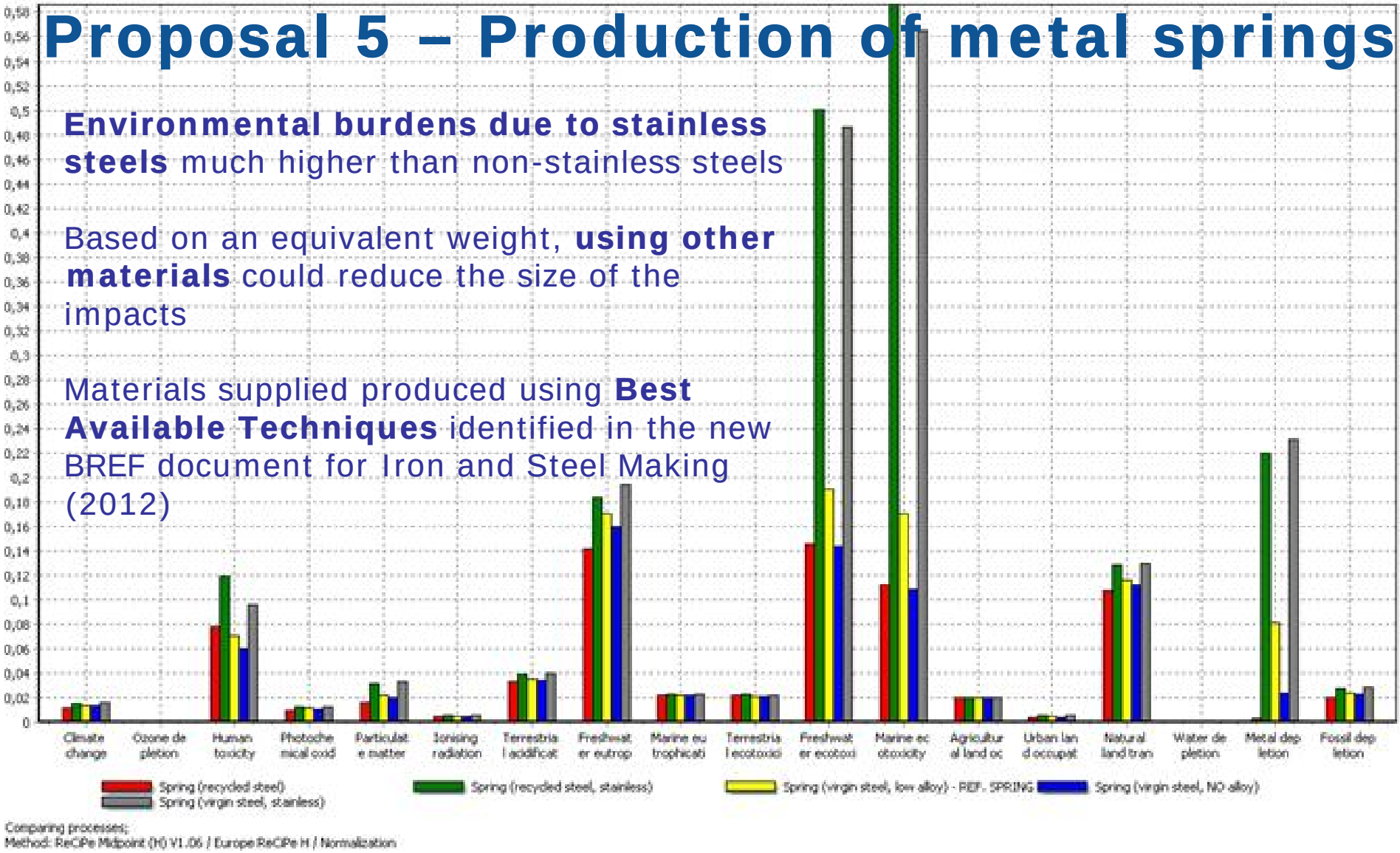
European Commission

Proposal 5 – Production of metal springs

Environmental burdens due to stainless steels much higher than non-stainless steels

Based on an equivalent weight, **using other materials** could reduce the size of the impacts

Materials supplied produced using **Best Available Techniques** identified in the new BREF document for Iron and Steel Making (2012)



Comparing processes;
Method: ReCiPe Midpoint (H) V1.06 / Europe ReCiPe H / Normalization

Springs and wires: selection of materials (NEW criterion)

Springs and wires **shall not be made of stainless steel**.

Assessment and verification:
Verification that the steel supplied to spring makers cannot be classified as stainless steel

Springs and wires: selection of materials (NEW criterion)

Where **steel** is used as material for springs and wires, it must be produced in accordance with the appropriate **Best Available Technique for steel production**, outlined in the EU BREF document for Iron and Steel Making. This outlines techniques for;

- loading, unloading and handling of bulk raw materials
- blending and mixing of raw materials
- coke production
- sintering and pelletisation of iron ore
- the production of molten iron by the blast furnace route, including slag processing
- the production and refining of steel using the basic oxygen process, including upstream ladle desulphurisation, downstream ladle metallurgy and slag processing
- the production of steel by electric arc furnaces, including downstream ladle metallurgy and slag processing

Assessment and verification:
Declaration from the steel supplier that techniques outlined in the BREF document are adhered to.

Proposal 6 – Production of Textiles (fibres and fabrics)

- **Importance of textiles** from a LCA perspective
- **Difficulties in complying** with too strict requirements
- **Rearrangement and additions** are proposed
- **Alignment** with EU Ecolabel for textiles (under revision) and with Nordic Swan for furnitures.
- Criteria refer to **filling fibres and/or cover fabrics**

No.	Area	Summary
x.1	**Biocides**	As existing criteria 6.1
x.2	**Chrome mordant dyeing**	As existing criteria 6.7
x.3	**Metal complex dyes**	As existing criteria 6.8 Addition of metal complex dyes based on cadmium and mercury in accordance with the Blue Angel criteria for mattresses
x.4	**Azo dyes**	As existing criteria 6.9 Addition of Azo dyes releasing 4,4'-methylene-bis-(2-chloroaniline) (101-14-4) in accordance with the Blue Angel criteria for mattresses **The possibility to refer to a dye list is explored in the current criteria revision for Textiles**
x.5	**Dyes that are carcinogenic, mutagenic or toxic to reproduction**	As existing criteria 6.10
x.6	**Potentially sensitising dyes**	As existing criteria 6.11 Addition of Disperse Yellow 3.C.I 11855 **The addition of Disperse Blue 1 is proposed in the current criteria revision for Textiles**
x.7	**Impurities in dyes and pigments**	Merge of existing criteria 6.5 and 6.6
x.8	**Auxiliary chemicals**	As existing criteria 6.2 **The addition of Nitrilotriacetic acid (NTA) is proposed in the current criteria revision for Textiles**
x.9	**Detergent fabric softeners and complexing agents**	As existing criteria 6.3

No.	Area	Summary
x.10	**Bleaching agents**	As existing criteria 6.14
x.11	**Formaldehyde**	Addition of criteria in accordance with Nordic Swan for furniture which limits emissions of formaldehyde from textiles. **Limits on formaldehyde are under discussion in the current criteria revision for Textiles**
x.12	**Wastewater discharges from wet processing**	Addition of criteria in accordance with Nordic Swan for furniture which limits COD and pH values in effluent streams **An alternative option is even explored in the current revision forTextiles.**
x.13	**Durability**	Addition of criteria in accordance with Nordic Swan for furniture which provides guidelines for wear tests **A new prescription on coating resistance is also proposed in the current revision for Textiles.**
x.14	**Dimensional changes during washing and drying**	Addition of criteria in accordance with EU Ecolabel for textiles which provides limits of changes of dimension from washing
x.15	**Colour fastness to washing**	Addition of criteria in accordance with Nordic Swan for furniture, which provides colour fastness specifications for washing of textiles.
x.16	**Colour fastness to wet rubbing**	As existing criteria 6.13
x.17	**Colour fastness to dry rubbing**	As existing criteria 6.14
x.18	**Colour fastness to perspiration (acid, alkaline)**	As existing criteria 6.12

X7) **Impurities in dyes and pigments – merging of existing**

i. Dyes - Colour matter with fibre affinity (soluble or insoluble).

The **levels of ionic impurities** in the dyes used shall not exceed the following: Ag 100 ppm; As 50 ppm; Ba 100 ppm; Cd 20 ppm; Co 500 ppm; Cr 100 ppm; Cu 250 ppm; Fe 2 500 ppm; Hg 4 ppm; Mn 1 000 ppm; Ni 200 ppm; Pb 100 ppm; Se 20 ppm; Sb 50 ppm; Sn 250 ppm; Zn 1 500 ppm.
Any metal that is included as an integral part of the dye molecule (e.g. metal complex dyes, certain reactive dyes, etc.) shall not be considered when assessing compliance with these values, which only relate to impurities.

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

ii. Pigments - Insoluble colour matter without fibre affinity.

The **levels of ionic impurities** for pigments used shall not exceed the following: As 50 ppm; Ba 100 ppm, Cd 50 ppm; Cr 100 ppm; Hg 25 ppm; Pb 100 ppm; Se 100 ppm Sb 250 ppm; Zn 1 000 ppm.

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

X11) **Formaldehyde** – new, in accordance with the **Nordic Swan** furniture criteria

Emissions of formaldehyde must not exceed 20 ppm for textiles according to EN ISO 14184-1. Alternatively, **evaporation must not exceed 0.005 mg/m3** measured in a climate chamber test according to ENV 13419-1. **Limits on formaldehyde are under discussion in the criteria revision for Textiles**

Assessment and verification:
The applicant shall provide a test report, using the following test method: EN ISO 14184-1. Sample of 1 g with 100 g water heated to 40 °C for 1 hour. Formaldehyde in extract analysed with acetylacetone, photometric.

Alternatively, the emission chamber test may be used: ENV 13419-1, with EN ISO 16000-3 or VDI 3484-1 for air sampling and analysis. The sample shall be taken less than one week after production of the textiles. Packaging of sample: air tight wrapped, individually, in aluminium foil and PE foil. Conditioning: The wrapped sample shall be stored at room temperature for at least 24 hours, after which the sample is unwrapped and immediately transferred into the test chamber. Testing conditions: sample placed on sample holder which allows access of air from all sides; climatic factors as in ENV 13419-1; for comparison of test results the area specific ventilation rate (q = n/l) shall be 1; the ventilation rate shall be between 0,5 and 1; the air sampling shall be started 24 hours after chamber loading and finished at the latest 30 hours after loading.

X12) **Waste water discharges from wet processing** – new, in accordance with the **Nordic Swan** furniture criteria

The chemical oxygen demand in the emission water discharged from wet processes (except greasy wool scouring sites and flax retting sites) shall when discharged after treatment (whether onsite or offsite) be **less than 20 g COD / kg textile**, expressed as an annual average.
If the effluent is treated onsite and released directly to nature, it must also have a **pH value between 6 and 9** (unless the pH values in the recipients are higher or lower) and a temperature of **less than 40°C** (unless the temperature in the recipient environment is higher).
An **alternative option** is even **explored in the revision for Textiles**

X13) **Durability** – new, in accordance with the **Nordic Swan** furniture criteria

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**. **A new prescription** on coating resistance is **also proposed in the revision for Textiles.**

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

X14) **Dimensional Change** – new, in accordance with the **EU Ecolabel** for Textiles

The **dimensional changes after washing and drying** shall not exceed:
- plus or minus 2 % for curtains and for furniture fabric that is washable and removable,

This criterion **does not apply to:**
- fibres or yarn,
- products clearly labelled "dry clean only" or equivalent (insofar as it is normal practice for such products to be so labelled),
- furniture fabrics that are not removable and washable.

Assessment and verification: The applicant shall provide test reports using the following standards EN ISO 63 30, ISO 5077 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,

X15) **Colour fastness to washing** – new, in accordance with the **Nordic Swan** for furniture

The **colour fastness to washing shall be at least level 3 to 4 for colour change and at least 3 to 4 for staining**. This criterion **does not apply** to products clearly labelled ”Dry clean only” or equivalent (insofar as it is normal practice for such products to be so labelled), to white products or products that are neither dyed nor printed, or to non-washable furniture fabrics.

Assessment and verification: The applicant shall provide test reports using the following standard ISO-105-E01(colour fastness to water).

Criteria area 2.

Manufacture and storage

Manufacture, storage and transport of the product as additional concern

No provision is currently made in the EU Ecolabel

Proposal 7 – Industry Best Practice

Factors influencing storage and transport are proposed to be reported (adapted from French NF Environment Ameublement Scheme)

More specific prescriptions in future.

Industry best practice for transport and storage (NEW criterion)

The applicant must **demonstrate that logistics (transport and storage of the finished mattress) are monitored**, for example through;

- Loading and delivery plans,
- Product design plans,
- Storage capacity utilisation
- The applicant must be able to prove the reasoning behind these using a number of monitoring indicators (such as loading of transport vs. maximum capacity, the ratio of number of orders vs. number of lorries, storage capacity used in warehousing (actual vs. maximum).

Assessment and verification:

The applicant must supply the assessor with proof of logistical monitoring strategies and provide indicators to measure this, these include loading of lorries, average warehouse storage capacities and ratio of orders vs number of lorries).

Criteria area 3.

Hazardous materials and substances

New approach for restricting the use of certain substances (EC/66/2010)

Some changes are required to provide better clarity and remove **burdens placed on applicants.**

Proposal 8 – Horizontal approach to restrict hazardous substances and preparations in the final product

Proposal 9 – Restriction on specific substances for Latex and PUR

Proposal 10 – Flame retardants

Proposal 11 – Biocides

Proposal 12 - Phthalates

Proposal 8 – Horizontal approach to restrict hazardous substances and preparations in the final product

EU Ecolabel legislation (EC/66/2010) → restrictions on the use of hazardous materials and substances (Art. 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

Hazardous materials and substances can be classified through hazard statements / risk phrases

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 (Art. 6.7 of the EU Ecolabel regulation).

For specific categories of goods containing substances referred to in paragraph 6, and only in the event that it is not technically feasible to substitute them as such, or via the use of alternative materials or designs, or in the case of products which have a significantly higher overall environment performance compared with other goods of the same category, the Commission may adopt measures to grant derogations from paragraph 6. No derogation shall be given concerning substances that meet the criteria of Article 57 of Regulation (EC) No 1907/2006 and that are identified according to the procedure described in Article 59(1) of that Regulation, present in mixtures, in an article or in any homogeneous part of a complex article in concentrations higher than 0,1 % (weight by weight). Those measures, designed to amend non-essential elements of this Regulation, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 16(2).

Substances contained in the final product (NEW criteria)

1 - Hazardous substances and mixtures:

In accordance with Article 6(6) of Regulation (EC) No 66/2010, the product or any homogeneous part of it shall not contain substances referred to in Article 57 of Regulation (EC) No 1907/2006 nor substances or mixtures meeting the criteria for classification in the following hazard classes or categories in accordance with Regulation (EC) No 1272/2008 of the European Parliament and of the Council.

Relevant **hazard statements are listed in appendix I**

The use of **substances or mixtures in the final product which upon processing change their properties i**n a way that the identified hazard no longer applies is exempted from the above requirement.

Concentration limits for substances or mixtures meeting the criterion for classification in the hazard classes or categories listed in the table above, and for substances meeting the criterion of Article 57 (a), (b) or (c) of Regulation (EC) No 1907/2006, shall not exceed the generic or specific concentration limits determined in accordance with the Article 10 of Regulation(EC) No1272/2008. Where specific concentration limits are determined, they shall prevail against the generic ones.

Concentration limits for substances meeting criteria of Article 57 (d), (e) or (f) of Regulation (EC) **No 1907/2006** shall not exceed **0.01 % weight by weight. Components** are considered to be individual items or parts used to form the mattress, for example springs or a textile layer comprised of a single textile type.

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	R27
H311 Toxic in contact with skin	R24
H330 Fatal if inhaled	R23; R26
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 through prolonged or repeated exposure	R48/25/24/23
H373 May cause damage to organs through prolonged or repeated exposure	R48/20/21/22
H400 Very toxic to aquatic life	R50/50-53
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

Substances contained in the final product

The following substances/uses of substances are specifically **derogated** from this requirement;

- **Natural latex** when used in the mattress core. (H317 – May cause allergic skin reaction)
- **Nickel** when used in stainless steel springs. (H351 - Limited evidence of a carcinogenic effect, H317 - May cause sensitization by skin contact, H372 - Toxic: danger of serious damage to health by prolonged exposure through inhalation). Only if relevant - see proposal 5

ATO?

Substances contained in the final product

Assessment and verification:

The applicant shall provide the exact formulation of the product and of each part of it. 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. This declaration shall be supported by summarized 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).
Information on intrinsic properties of substances may be generated by means other than 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 REACH, exempted from registration obligations under Article 2(7) (a) and (b) of Regulation 1907/2006 REACH, a declaration to this effect will suffice to comply with the requirements set out above.
Concentration limits shall be specified in accordance with Article 31 of Regulation (EC) No 1907/2006 for substances and mixtures. These declarations should cover the materials used in the mattress (e.g. cotton, steel, wool) and any additional substances which are present as a result of processing which remain in the materials in the finished product (e.g. dyes).

Substances contained in the final product

2 - Substances listed in accordance with article 59(1) of Regulation (EC) No 1907/2006:

No derogation from the exclusion in Article 6(6) 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, present in mixtures, in an article or in any homogenous part of a complex article in concentrations higher than **0.010% w/w.** When the **specific concentration limit** of substances determined in accordance with Article 10 of Regulation (EC) No1272/2008 are lower than 0.010%, they should apply.

Assessment and verification:

The list of substances identified as substances of very high concern and included in the candidate list in accordance with Article 59 of Regulation (EC) No 1907/2006 can be found here: **http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp**

eference to the list shall be made on the date of application.

Substances contained in the final product

An additional sub-criterion under discussion in the criteria revision for textiles:

Criteria X1: Supplier recipe and substance screening

Manufacturer would be required to **screen the Hazard Statements of their production recipes** based primarily on Safety Data Sheet information, but supplementing this where required (e.g. with test data for biodegradability).
Using a combination of the approaches used by TEGEWA, GOTS and Blue Angel, the Hazard Statement list would be **grouped into hazards related to occupational health** (i.e. in the factory) **and to the environment** (i.e. relating to air and water emissions) **in order to identify risks** due to potential exposure at source.
Some of these H Statements would be completely restricted (e.g. R50/53) and others may be derogated under certain conditions (e.g. hardly boiodegradable substances if there is an adequate wastewater treatment plant, dyes if there is automatic dispensing to reduce dust exposure and wastewater colour removal, since most dyes carry R53).

Is this workable for this product group?

Proposal 9 – Restriction on specific substances for Latex and PUR

Alignment with other labels is needed:

- EuroLATEX ECO-Standard
- CertiPUR
- Blue Angel scheme for mattresses

Update the current EU Ecolabel criteria on Latex and PUR

EuroLATEX ECO-Standard → changes for Latex:

Criterion 1.3 – Addition of limits on individual VOC emissions, specifically;
Toluene <0.1 mg/m^3
Vinyl cyclohexane <0.002 mg/m^3
Styrene < 0.01 mg/m^3
4-Phenylcyclohexane <0.02 mg/m^3
1,1,1 – trichloroethane <0.2 mg/m^3
Tetrachloroethylene < 0.15 mg/m^3
Trichlorethylene <0.05 mg/m^3
With total cumulative emissions of aromatic hydrocarbons <0.3 mg/m^3 and VOCs <0.5 mg/m^3

Criteria 1.6 and 1.7 - Allowable concentrations of pentachlorophenol and butadiene set to 0.1 ppm

Criterion 1.9 – A threshold limit of 0.1µg/m^3 set for vinyl chloride emissions

Blue Angel → addition to criterion 1.3 for VOCs:

The emissions for carbon disulphide must be less than < 0.02 mg/m^3
Verification through existing method (DIN ISO-16000-6.)

CertiPUR scheme → changes for PUR

Criterion 2.1 - Reducing the allowable concentrations of Arsenic and Lead from 0.5ppm to 0.2ppm, and the addition of selenium at a concentration of 0.5ppm.

Criterion 2.3 – Addition of limits on individual VOC emissions;
Toluene <0.1 mg/m^3
Styrene < 0.005 mg/m^3
Each CMR substance class 1a or 1b < 0.005 mg/m^3
Sum of all CMR substances class 1a and 1b* < 0.04mg/m^3
Aromatic hydrocarbons* < 0.5 mg/m^3
Total VOCs < 0.5 mg/m^3
*According to EU legislation -
http://www.dguv.de/ifa/de/fac/kmr/kmr_neue_bezeichnungen.pdf

Criterion 2.6 – Addition of Tetra-organic tin compounds to banned tin organic compounds

Two additional sections are proposed for new criteria on precursors (2.9).

Criteria 2.9ii – Limit on the emissions of the MDI precursor 4,4'-diaminodiphenylmethane (101-77-9) to <5.0ppm. (Should the use of TDI be allowed, a 5.0ppm limit must be set also with respect to 2,4-toluenediamine (95-80-7)).
Tested by extraction with 1 % aqueous acetic acid solution. 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). Four repeat extractions of the same foam sample must be performed maintaining the sample weight to volume ratio of 1:5 in each case. The extracts are combined, made up to a known volume, filtered and analysed by HPLC-UV or HPLC-MS. If HPLC-UV is performed and interference is suspected, reanalysis with HPLC-MS should be performed.

Criterion 2.9iii – A limit of 0.7% total chlorine content in the isocyanates used to produce the PUR. Verified by declaration.

An additional criterion (2.10) is also proposed which prohibits the use of specific substances.

The following substances are prohibited for use in PUR foam

- 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)-phosphinoxide (TEPA) - 5455-55-1
- Tris(2-chloroethyl)-phosphate (TCEP) -115-96-8
- Dimethyl methylphosphonate (DMMP) - 756-79-6

Declaration by applicant with supporting documentation from supplier if necessary.

Proposal 10 – Flame retardants (sub-criterion of horizontal approach)

Removing the differentiation between additive and non-additive flames retardants

The **horizontal criteria for hazardous substances** extend the list of risk phrases which were included in the existing criterion

List of **specified banned substances** in accordance with the Oeko-Tex 100 scheme

The following substances are prohibited from use in any materials used in the mattress;

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

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.

Proposal 11 – Biocides (sub-criterion of horizontal approach)

List of specified banned substances from the Oeko-Tex 100 scheme

The biocides listed in appendix II are prohibited in the finished mattress. 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.

Name	CAS No.	CAS No.	CAS No.	CAS No.	CAS No.
2,4,5-T	93-76-5	Diazinon	333-41-5	Lindane	58-89-9
2,4-D	94-75-7	Dichlorprop	120-36-2	Malathion	121-75-5
Azinophosmethyl	86-50-0	Dicrotophos	141-66-2	MCPA	94-74-6
Azinophosethyl	2642-71-9	Dieldrine	60-57-1	MCPB	94-81-5
Aldrine	309-00-2	Dimethoate	60-51-5	Mecoprop	93-65-2
Bromophos-ethyl	4824-78-6	Dinoseb and salts	88-85-7	Metamidophos	10265-92-6
Captafol	2425-06-1	Endosulfan, -	959-98-8	Methoxychlor	72-43-5
Carbaryl	63-25-2	Endosulfan, -	33213-65-9	Mirex	2385-85-5
Chlordane	57-74-9	Endrine	72-20-8	Monocrotophos	6923-22-4
Chlordimeform	6164-98-3	Esfenvalerate	66230-04-4	Parathion	56-38-2
Chlorfenvinphos	470-90-6	Fenvalerate	51630-58-1	Parathion-methyl	298-00-0
Coumaphos	56-72-4	Heptachlor	76-44-8	Phosdrin / Mevinphos	7786-34-7
Cyfluthrin	68359-37-5	Heptachloroepoxide	1024-57-3	Perthane	72-56-0
Cyhalothrin	9 1465-08-6	Hexachlorobenzene	118-74-1	Propethamphos	31218-83-4
Cypermethrin	52315-07-8	Hexachlorcyclohexane, α-	319-84-6	Profenophos	41198-08-7
DEF	78-48-8	Hexachlorcyclohexane, β-	319-85-7	Quinalphos	13593-03-8
Deltamethrin	52918-63-5	Hexachlorcyclohexane, δ-	319-86-8	Strobane	8001-50-1
DDD	53-19-0, 72-54-8	Isodrine	465-73-6	Telodrine	297-78-9
DDE	3424-82-6, 72-55-9	Kelevane	4234-79-1	Toxaphene	8001-35-2
DDT	50-29-3, 789-02-6	Kepone	143-50-0	Trifluralin	1582-09-8

Proposal 12 – Phthalates (sub-criterion of horizontal approach)

List of **banned substances** from the Oeko-Tex 100 scheme

Name	CAS-Nr.	Acronym
Di-iso-nonylphtalate	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
Dibutuylphthalate	84-74-2	DBP
Di-iso-butylphthalate	84-69-5	DIBP
Di-C6-8-branched alkyphthalates	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

The following phthalates are prohibited in the finished mattress.

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.

Criteria area 4.

Fitness-for-use

Proper design and use of the mattress = key factors from an environmental and a health point of view

Importance of **quality aspects** raised by stakeholders

Proposal 13 –Warranty coverage during the lifespan of the mattress

Proposal 14 – Requirements on the technical performance

Proposal 13 –Warranty coverage during the lifespan of the mattress

The **technical lifespan** of a mattress can be **7-10 years and more.**

For **hygienic reasons,** it would be recommended that a mattress should not be used after **7 years**.

By implementing an **extended warranty period to 7 years** manufacturers will seek to ensure the technical performance of the mattress covers the full lifespan of the mattress.

Criteria 10 – Extended Warranty (NEW criterion)

Mattresses must have an extended warranty period of at least 7 years which must be included as part of the sale of the mattress. This prescription shall not be applied to baby mattresses.

Assessment and Verification
Declaration and documentation of extended warranty scheme.

Proposal 14 – Requirements on the technical performance

Including evidence of **quality assurance and testing** for durability and performance

Confidence to the consumer and help to **prevent premature replacements**

A) **Addressing the quality assurance of the product (eco-report)**

B) **Performance testing =** LGA-Rating system from TUV Rheinald

50 points for minimum performance of mattresses
70 for a good quality.
Min. Value for the EU Ecolabel = 80 points

TÜV Rheinland LGA Products GmbH
Furniture Test Institute

TÜVRheinland®
LGA

Test report

No. 21146388-002
Order No. 10 53 509

Reported to: TED-BED JSC
6th September Blvd. 222 A
4000 Plovdiv
Bulgaria

Object: Mattress "Orthopedic-Roll-packed spring mattress"
(1 sample supplied by the client)

Order: Durability test and evaluation of the
resilience characteristics according to
LGA-Guidelines and DIN EN 1957 : 08.2000

Findings

The mattress "Orthopedic-Roll-packed spring mattress" has been tested in a durability test rig with a roller load of 1400 N in two test stages with a total of 30 000 cycles. In the centre of the area three measurements of the characteristic curves of resilience have been taken as follows:

The data are determined based on the LGA-rating system limited to a maximum of 100 points.

The requirement for an increased quality level is 80 points *).

*) Note:
The minimum value for performance is 50 points. More than 70 points specific a good quality. At this the area under test has to be free of any damages / changes related to textile fabric and interior of mattress.

The reached total number of points for the 4 characteristic data is 96 points.

Change in height after test:	21 points
Change in hardness after 30 000 strokes:	25 points
Change in hardness after test:	25 points
Resilience loss factor after test:	25 points

The results of the test refer solely to the tested sample.

The following pages contain further information about test parameters and geometry of the roller, measurement conditions and design of the loading pad, modalities of assessment and rating system.

Criterion 11 – Quality assurance (NEW criterion)

Applicants will provide a **report** describing the approach and actions taken by the mattress manufacturer **to describe how quality issues are taken into due account during the design of the product**. This should cover aspects such as selection of materials, internal testing and verification procedures, and details of research and development.

Assessment and Verification:
Inclusion of a report detailing the approach and actions taken to assure the quality of the product.

Criterion 12.2 – Mattress performance (NEW criterion)

The **performance** of the mattress must be **assessed using the LGA-Rating system**. Mattresses must **score a rating of 80 points or more** using this system.

Assessment and Verification:
Test report verifying that the mattress has or exceeds the LGA-rating of 80.

Criteria area 5.

Packaging

Packaging: negligible contribution to the lifecycle impacts

Requirements for the use of recycled materials in packaging would:

1. **Not** produce **significant environmental benefits**
2. Place a disproportionate burden on applicants.

Proposal 15 – Appropriateness of a criterion on packaging

The existing criterion on packaging will be removed

Criteria area 6.

End of Life

Common concern on the disposal of mattresses in landfill

Reuse limited by hygiene and performance issues

Diversion of the product from landfill by implementing an extended producer responsibility scheme (Similar approach taken by the Austrian Ecolabel)

Mattresses are difficult to **disassemble and repair** due to their construction. Making information available may help spur on these activities.

Proposal 16 – Implementing a collection system to divert from landfill

Proposal 17 – Design for disassembling and recovery of materials

Criterion 13 – Collection Scheme (NEW criterion)

The applicant will put in place a **bonus scheme for customers** who return end-of-life mattresses. This scheme will provide a **5% discount or refund** for purchasers of a new mattress which has been awarded the EU Ecolabel.
Alternative mattress disposal routes to landfill should be used, for instance recycling or energy recovery from waste.

Assessment and Verification:
The applicant should provide a document outlining the details of this scheme, including how the collection and refund system operates, details of how the mattresses are disposed of, and a declaration that none of these mattresses are sent to landfill.

Criterion 14 – Design for disassembly and recovery (NEW criterion)

The applicant will provide the **layout and design of the main components** of the mattress, as well as **construction details** (e.g. how components are joined to each other). In addition details will be provided that **design** of the mattress considered aspects related to maintenance, end of life, disassembly and potential recovery of materials.

Assessment and Verification:
Applicants shall provide a diagram of the mattress, clearly identifying the major components and materials they are made from. Details of the method used to connect materials together will also be provided.
A report will be provided which outlines any design considerations related to end-of-life, deconstruction, and maintenance which were used in the design of the mattress.

Criteria area 7.

Other issues

Proposal 18 – Consistency of the criteria

Minor alterations to wording are needed:

- **Criteria 3** on wire and springs refer to PUR, this will be corrected.
- **Criterion 5.1** on sustainable forest management includes the sentence “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". This refers to the wire and springs criteria (If criteria for wood remain, then this sentence will be deleted)
- **References to hazardous substances** will be correctly referenced to Regulation (EC) No 1272/2008 throughout the document.

Proposal 19 – Information on the label

Proposed Change:

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

Issues to be considered in Next Revision

Energy and lifecycle based requirements

Stricter requirements on sustainable sourcing of materials

Guidance on storage

Alternative materials for springs (e.g. Plastics)

Parameters influencing the performance (e.g. humidity and temperature control)

Eco-design of the mattress (e.g. Appropriate weight and formulation)