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Revision of Ecolabel and Green Public Procurement criteria for the product group

Wooden Furniture

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Institute for Prospective Technological Studies

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managing your technologies

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EXECUTIVE SUMMARY

The EU Ecolabel and Green Public Procurement (GPP) criteria for wooden furniture[1] are under revision. The objective is to revise existing Ecolabel and Green Public Procurement criteria for wooden furniture. The revision process will take into account the possible expansion of the scope for this product group. This can lead to the addition of criteria for other types of furniture. The criteria will address the most important environmental impacts of furniture in a life cycle perspective.

During the development of the EU Ecolabel and GPP criteria, continuous wide consultation is foreseen with experts and stakeholders of manufacturers, supply chain industry, consumer organizations, NGOs and Member States. The evidence base uses available scientific information and data, adopts a life-cycle approach and engages participants to discuss the issues and develop consensus.

A background report[2] has been produced to analyse different aspects relevant for the revision of the EU Ecolabel and GPP criteria of the product group 'Wooden Furniture'. As a part of the comprehensive analysis, a questionnaire related to the existing criteria was sent to the stakeholders to collect preliminary feedback. Based on these results[3] a validity check of the product scope has been conducted, as well as an assessment of the need for amending or changing the existing EU Ecolabel and GPP criteria.

A preliminary analysis of the scope and existing criteria for furniture has been carried out. One of the key issues for discussion is the possibility to expand the product group scope from wooden furniture to furniture in general, including different materials. The background study[2] shows that the main materials used for furniture are wood, wood-based materials, metal, plastics and textiles. Therefore, particular attention will be given to the environmental aspects of these materials (including impacts of surface treatment and adhesives used).

In the Commission Statement from the Directorate General Environment[4] accompanying the development of criteria for wooden furniture the following aspects were pointed out to be considered in this revision:

- The availability of certified wood on the market will be checked and the percentage requested will be adjusted accordingly via a revision of the criteria.
- The exclusion of all halogenated flame retardants.

[1] 2009/894/EC: Commission Decision of 30 November 2009 on establishing the ecological criteria for the award of the Community eco-label for wooden furniture, available online at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:320:0023:0032:EN:PDF

[2] For more information see details in "Background report", available online at the project's website: http://susproc.jrc.ec.europa.eu/furniture/whatsnew.html

[3] See appendix I: Results of questionnaires to analyze the existing scope and criteria for furniture

[4] Regulatory committee established under Regulation (EC) No 1980/2000 of the European Parliament and of the Council of 17 July 2000 on a revised Community eco-label award scheme, available online at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2000:237:0001:0012:EN:PDF

- The limit values of elements and substances allowed in recycled wood fibres for the production of wood-based material must be updated.
- The allowance for dangerous substances classified as H420 (R59).
- To include a global warming potential indicator (GWP).
- To exclude manufactured nano-materials added to the product.
- To increase the percentage of virgin wood and percentage of wood based materials coming from sustainably managed forest or recycled sources.
- Market data and possibilities to substitute chemical preservation of outdoor products by other methods or with resistant and sustainable wood.
- Use phase criteria on VOC and Formaldehyde emissions.
- The exclusion of substances of very high concern, especially with regards to the substances referred to and defined in Article 59 (1) (also referred to as the "Candidate List") of the Regulation Nº 1907/2006.
- The definition of legal forestry especially with regard to the FLEGT.
- The definition of Sustainable Forest Management (SFM).
- The exclusion or inclusion of GMO wood and its relevance.
- The relation between criteria for Green Public Procurement of wooden furniture/floor covering and criteria in the EU Ecolabel.
- The necessity of labelling ingoing PVC material and possibility of sorting out and collecting wooden products with PVC content.

Furthermore, in the background report the following issues are covered:

- ✓ Legislation,
- ✓ European Standards,
- ✓ Other environmental labelling schemes,
- ✓ Market analysis,
- ✓ Analysis of Life Cycle Assessment studies
- ✓ Analysis of hazardous substances used in furniture industry according to REACH regulation (EC) 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals.

The proposals for criteria revision are motivated by the results of the accompanying background analysis. The main points of that analysis are summarised in the following paragraphs.

The market report reveals that the most common material used in the furniture sector is wood (56% of the pieces of furniture produced in the EU 27 in 2011 are based on wood, which also represents 56% of the production value). Metal is the second material most commonly used in the furniture industry (12% of items produced and 17% of the production value), followed by plastic (6% of items produced and 1% of the production value) and other materials (1% of items produced and negligible production value) like bamboo, cannier, osier, glass. The remaining 25% are not specified within the PRODCOM database. Although wood is the most common material used, most pieces of furniture also contain other materials. Based on the segmentation of the furniture market, it is considered reasonable to widen the scope of the EU Ecolabel criteria in order to cover a much broader share of the furniture market and to respond better to the expectations of the potential licence holders. On both the demand and supply sides of the furniture market there is evidence that the framework is favorable to host Ecolabel products, because issues concerning sustainability and environmentally-friendly furniture are becoming increasingly important.

The main outcomes from the LCA review and the analysis of ecodesign measures can be summarised as follows:

- **Materials**. Materials and processing of materials are highly significant in most impact categories such as global warming potential, eutrophication potential, acidification potential, photochemical ozone formation potential and ozone depletion potential. Impacts for metals and plastics are generally higher than for wood but durability of materials is an important issue to take into account. A lot of energy is embedded in virgin metals. Burdens can be decreased by improving resource efficiency and by recycling. Wooden materials also demand energy in their production processes, for instance for sawing and drying. Transport of materials is less important than processing, but it could become more relevant when non-local materials are used. Improvement potential options have been found by using more sustainable materials (renewable, recyclable or minimizing the use of hazardous substances).
- **Manufacturing**. Manufacturing seems to be the second most relevant stage of the lifecycle. Energy consumption is the most important parameter, especially in processes where heating is used, such as drying in painting and coating. The use of adhesive and coating substances can also be an important source of concern in certain impact categories.
- **Packaging**. Packaging is assessed in terms of materials used and impacts related. In general, the environmental load is low but not negligible. Improvement potential options have been found if packaging is optimized.
- **Distribution**. Distribution is not deeply investigated since normally only average scenarios are used. However, this seems to be an issue of secondary importance only for some impact categories (e.g. ODP). Improvement potential options have been found for distribution phase (e.g. optimization of logistics, vehicles, or decreasing distances of transport).
- **Use**. When maintenance is included in the assessment it results to have negligible impacts. Durability is instead a key issue to minimize the impacts of furniture products.

- **End-of-Life**. End-of-life impacts vary depending of the waste treatment scenarios. Burdens due to landfilling are relatively low compared to the other lifecycle stages. However, significant improvement potential can be achieved by reusing and recycling products or parts of them or by recovering the energy content of the waste.

According to the LCA screening, it will be important to set criteria for the different material types which may be used in furniture. The focus should be on the most important environmental impacts associated to wood and wood-based products (such as sustainable forestry), metals, plastics and any other critical material identified along the project.

Ecolabelled furniture should not contain harmful substances. They should not pose any potential threat to human health and environment along the product life cycle. Analysis of the most commonly used substances has been conducted and the identification of substances of concern (e.g classified with H- hazard statements according to CLP regulation) has been made, based on the substances inherent properties. The consideration of more stringent requirements (in comparison with the currently existing criteria) is proposed for some criteria in order to ensure better environmental performance of this product group.

Based on this preliminary analysis, some of the key issues for further consideration and discussion are listed below:

- The possibility to extend the product group from wooden furniture to other types of furniture.
- The possibility of harmonization with other eco-labels (Nordic Swan, Blue Angel, etc.), in accordance with the recommendation of the EU Ecolabel Regulation 66/2010.
- Setting specific requirements for materials other than wood such as plastics, metals, glass and textiles, in case of scope extension.
- Several criteria regarding substances could be potentially grouped under one horizontal criterion for excluded and restricted substances and mixtures (e.g. the current criteria 2, 3c, 3d, 3e, 4a, 4b, 4c, 4d, 4e and 5a).
- Introduction of specific requirements concerning ecodesign.

Furthermore, it is proposed to reorganise the criteria in relation to the product life cycle, e.g. raw materials extraction, manufacturing and assembly, use phase and end-of-life.

In Table 1 an overview is given of the current Ecolabel criteria versus the proposal for the revised criteria. The rationale and discussion for each criterion can be found in the following sections. For even more detailed information, the reader is kindly directed to the accompanying background report[5].

[5] For more information see details in "Background report", available online at the project's website: http://susproc.jrc.ec.europa.eu/furniture/whatsnew.html

Table 1. Overview of current Ecolabel criteria versus the suggested revised criteria for furniture

EXISTING DEFINITION OF PRODUCT GROUP	Potential changes, modifications or amendments
The product group of 'wooden furniture' shall comprise free-standing or built-in units, which are used for storing, hanging, lying, sitting, working and eating of domestic furniture, whether for indoor or outdoor use, or used indoors for business purposes. Business purposes shall include office and school furniture as well as furniture for restaurants and hotels. The following conditions shall be fulfilled: (a) The product shall be made of at least 90 % w/w solid wood or wood-based materials. Glass, if easily replaceable in case of damage or breakage, may be excluded from the weight calculation as may technical equipment and fittings (b) The weight of any individual material, other than solid wood and wood-based materials, shall not exceed 3 % of the total weight of the product. The total combined weight of such materials shall not exceed 10 % of the total weight of the product	Based on the elements stated above, the following scope definition is preliminarily proposed for the EU Ecolabel on furniture: *The product group of 'furniture' shall comprise free-standing or built-in units of different types of furniture based on wood and wood-based materials, metal, plastic, padding materials, textile and glass. Furniture can also contain other components made, for instance, of stone, bamboo or willow.* The criteria cover: • **Indoor furniture**: This includes indoor furniture for business purposes as well as for domestic purposes. • **Outdoor furniture:** This includes mainly benches, tables and chairs for business as well as for domestic purposes. Specific types of products whose primary function is not to be used as furniture is excluded from the scope (e.g. streetlights, bike-parks, playgrounds, building products - steps, walls, panels -, sanitary equipment, carpets). Separate criteria have been drafted for textiles[6], paints[7] and bed mattresses[8]. In order for a product to be marketed as Ecolabel, the whole product shall be approved. Moreover, a change of the product group name from “wooden furniture” to “furniture” is also proposed.

[6] 2009/567/EC: Commission Decision of 9 July 2009 establishing the ecological criteria for the award of the Community Ecolabel for textile products, more information available online at: http://ec.europa.eu/environment/ecolabel/products-groups-and-criteria.html

[7] 2009/544/EC: Commission Decision of 13 August 2008 establishing the ecological criteria for the award of the Community eco-label to indoor paints and varnishes, more information available online at: http://ec.europa.eu/environment/ecolabel/products-groups-and-criteria.html

[8] 2009/598/EC: Commission Decision of 9 July 2009 establishing the ecological criteria for the award of the Community Ecolabel for bed mattresses, more information available online at: http://ec.europa.eu/environment/ecolabel/products-groups-and-criteria.html

Current exemptions from certain criteria on materials shall apply: (i)Materials, other than solid wood and wood-based materials, and other than those covered by the criteria for surface treatments and for the assembly of furniture, which account for less than 3% of the total weight of the eco-labelled product may be exempt from compliance with "wood and wood-based material requirements". (ii) Fixtures, such as screws and nails, and metal hardware for sliding doors and drawers are exempt from compliance with all criteria on materials.		**Proposal for exemptions from certain criteria on materials:** (i)Plastic which account for less than 10% the total weight of the eco-labelled product may be exempt from compliance with the recycled materials content. (ii) Metals which account for less than 50% the total weight of the eco-labelled product may be exempt from compliance with the recycled materials content. (iii)Fixtures, such as screws and nails, and metal hardware for sliding doors and drawers are exempt from compliance with all criteria on materials. (iv)Glass, even easily replaceable in case of damage or breakage, shall not be excluded from the weight calculation as may occur with technical equipment and fittings.
CRITERIA	**EXISTING EU ECOLABEL CRITERIA**	
1. Product Description	A description of the product shall be provided Information shall be provided on the total weight of the product, the materials used in the product, including fixtures and fittings, and their respective weight. According to the current definition of wooden furniture: *"Glass, if easily replaceable in case of damage or breakage, may be excluded from the weight calculation as may technical equipment and fitting".*	No changes proposed for the product description. According to the proposal for exemptions and the possible scope extension: Glass, even easily replaceable in case of damage or breakage, shall not be excluded from the weight calculation as may occur with technical equipment and fittings.
2. Hazardous Substances	- No substances or preparations that are assigned, or may be assigned at the time of application, any of the following risk phrases (or combinations thereof) may be added to the wooden product: R23, R24, R25, R26, R27, R28, R39, R40, R42, R43, R45, R46, R48, R49, R50, R51, R52, R53, R60, R61, R62, R63 and R68. According to CLP: H300, H301, H310, H311, H317 H330, H331, H334, H351, H350, H340, H350i, H400, H410,	a) Hazardous substances and mixtures According to the Article 6(6) of Regulation (EC) No 66/2010 the EU Ecolabel, the product of any component of it shall not contain substances meeting the criteria for classification with the hazard statements or risk phrases specified in table below in accordance with Regulation (EC) No 1272/2008 or Directive

	H411, H412, H413, H360F, H360D, H361f, H361d H360FD, H361fd, H360Fd, H360Df, H341, H370, H372.	67/548/EC9 nor shall contain substances referred to in Article 57 of Regulation (EC) No 1907/2006. The risk phrases in Table below generally refer to substances. However, if information on substances cannot be obtained, the classification rules for mixtures apply. Substances or mixtures which change their properties through processing and thus become no longer bioavailable, or undergo chemical modification in a way that removes the previously identified hazard are exempted from criterion 2 (a). b) Substances listed in accordance with Article 59(1) of Regulation (EC) 1907/2006 No derogation from the exclusion in Article 6(6) of Regulation (EC) No 66/2010 shall be given concerning substances identified as substances of very high concern and included in the list provided for in Article 59(1) of Regulation (EC) No 1907/200610, present in mixtures, in an article or in any homogeneous part of a complex article in concentrations higher than 0.1% w/w. Specific concentrations limits determined in accordance with Article 10 of Regulation (EC) No 1272/2008 shall apply in cases where the concentration is lower than 0.1%.
	- The product must not contain halogenated organic binding agents, azidirin and polyaziridin as well as pigments and additives based on lead, cadmium, chrome (VI), mercury and their compounds, arsenic, boron, copper and organic tin.	c) Specified excluded substances and mixtures The product must not contain the following substances and mixtures: ▪ Azidirine and polyaziridine

[9] OJ 196, 16.8.1967, p. 1

[10] http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp

	- Only flame retardants that are chemically bound into the matrix/material or onto the matrix/material surface (reactive flame retardants) may be used in the product. If the flame retardants used have any of the R-phrases listed below, these reactive flame retardants should, on application, change their chemical nature to no longer warrant classification under any of these R-phrases (less than 0,1 % of the flame retardant on the matrix/material may remain in the form as before application): R40, R45, R46, R49, R50, R51, R52, R53, R60, R61, R62, R63 and R68. According to CLP: H351, H350, H340, H350i, H400, H410, H411, H412, H413, H360F, H360D, H361f, H361d H360FD, H361fd, H360Fd, H360Df and H341.	▪ Pigments and additives based on lead, cadmium, chrome (VI), mercury, arsenic, boron, copper, cobalt, organic tin, anthracene, creosote, azo dyes or compounds thereof ▪ Halogenated organic compounds, including o Halogenated organic polymers o Halogenated organic binding agents o Halogenated organic solvents o Halogenated flame retardants: Hexabromocyclododecane (HBCDD) and all major diastereoisomers, Tris(2-chloroethyl)phosphate (TCEP), alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins -SCCP) and Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE). Only flame retardants that are chemically bound into the matrix/material or onto the matrix/material surface (reactive flame retardants) may be used in the product. If the flame retardants used have any of the hazard statements and risk phrases listed above in proposal for revised criterion 2 (a), these reactive flame retardants should, on application, change their chemical nature to no longer warrant classification under any of these hazard statements and R-phrases. Flame retardants which are only physically mixed into the matrix/material are excluded (additive flame retardants). ▪ The following phthalates: o Diisobutyl phthalate (DIBP), dibutyl phthalate (DBP), benzyl butyl phthalate (BBP) and bis (2-ethylhexyl) phthalate (DEHP). o Dipentyl phthalate (DPP), N-pentyl-isopentylphthalate, diisopentylphthalate (DIPP) and bis(2-methoxyethyl)phthalate.

		○ Diisononyl phthalate (DINP), diisodecyl phthalate (DIDP) and di-n-octyl phthalate (DOP or DnOP). ▪ 4,4'- Diaminodiphenylmethane (MDA) ▪ Bisphenol A and compounds thereof ▪ Pentadecafluorooctanoic acid and its salts (PFOA and APFO) d) Biocides i. Indoor furniture shall not be impregnated. For all other furniture, where impregnation or preservatives are used, they shall fulfil the requirements on hazardous substances and mixtures meeting criteria for classification with the hazard statements or risk phrases in accordance with CLP Regulation specified in point 2 (a) of this criterion. ii. According to the Biocidal Products Regulation (BPR, Regulation (EU) 528/2012)11, only biocidal products containing biocidal active substances approved by the European Commission and authorised by product type 8, wood preservatives, shall be allowed for use in wood outdoor furniture. iii. According to the Biocidal Products Regulation (BPR, Regulation (EU) 528/2012)12, only biocidal products containing biocidal active substances approved by European Commission and authorised by product type 18 (insecticides, acaricides and products to control other arthropods) shall be allowed for use in solid wood after logging or virgin

[11] More information available online at: http://echa.europa.eu/regulations/biocidal-products-regulation

[12] More information available online at: http://echa.europa.eu/regulations/biocidal-products-regulation

		wood. iv. No biocides must be applied to the surface of the final product with the intention to add a disinfective effect. v. Dimethylphumarate, pentachlorophenol and its salts and esters shall not be present in wood products.
3. Wood and Wood-Based Material Requirements	**CRITERION 3 NAME: Wood and Wood-Based Material Requirements** **(a) *Sustainable Forest management*** - The origin of all wood shall be documented to ensure that all wood originate from legal sources and does not come from protected areas. - From 1 January 2013, for wooden products placed on the market bearing the Ecolabel at least 70 % of any solid wood and 40 % wood-based materials must originate either from sustainably managed forests or from recycled materials.	Criteria 3 should be named "Material Requirements" instead of "wood and wood-based material requirements" and should covered main materials included in the scope. i. All type of materials (wood and wood-based products, plastic, metal, padding materials, glass and textiles) shall comply with the requirements set in section 2 regarding hazardous substances. ii. Material Requirements should be divided in: ✓ **<u>WOOD AND WOOD-BASED AND OTHER FOREST MATERIALS</u>** Present criteria a) should be breakdown in two different criteria: **(1) *Origin and traceability of all forest and wooden materials*** CHANGES PROPOSED: - Align the criterion with TIMBER TRADE REGULATION (Regulation (EU) No 995/2010 of the European Parliament and of the Council of 20 October 2010) - Include Non Wood Forest Products. If the scope is extended to other forestry and vegetal materials, such as willow or bamboo, criterion 3(a1) shall apply to all these materials. **(2) *Sustainable Forest management for wood and wooden materials*** CHANGES PROPOSED: - Discussion on the % of certified/recycled solid wood (current 70%)

		- Proposal to increase % certified/recycled materials for wood-based materials (proposed from 40% to 50%). - If the scope is extended to other forestry and vegetal materials, discuss if this criteria should applied for them. For those materials with no sustainable source certifications available, origin and traceability shall be provided as well as evidence of written procedures on sustainable management chain.
	(b) *Recycled wood fibres* Post consumer wood, chips or fibres shall at least comply with the provisions in the 'EPF Standard for delivery conditions of recycled wood'	**(b) *Recycled wood fibres*** Propose more restrictive limits for recycled wood fibres according to the new updated European standard EN 71-3:2013 regarding the migration of certain elements.
	(c) *Impregnating substances and preservatives* **(i) Indoor furniture shall not be impregnated.** For all other furniture, where impregnation or preservatives are used, they shall fulfil the requirements on hazardous substances (Section 2). **(ii) Solid wood, after logging, shall not be treated with substances or preparations containing substances that are included in any of the following lists:** — WHO recommended classification of pesticides by hazard classified as class 1a (extremely hazardous), — WHO recommended classification of pesticides by hazard classified as class 1b (highly hazardous). Moreover, the treatment of wood shall be in accordance with the provisions of Council Directive 79/117/EEC and Council Directive 76/769/EEC.	***(c) Impregnating substances and preservatives*** This criterion has been removed from criterion 3 (c) and integrated in section 2 (d) regarding hazardous substances.
	(d) *Use of hazardous substances and preparations in the*	

	production of wood-based materials In addition to the requirements of Section 2 on hazardous substances, all substances and preparations used in the production of wood-based material shall fulfil the following: **(i)** Virgin wood shall not be treated with substances or preparations containing substances that are included in any of the following lists: — WHO recommended classification of pesticides by hazard classified as class 1a (extremely hazardous), — WHO recommended classification of pesticides by hazard classified as class 1b (highly hazardous). Moreover, the treatment of wood shall be in accordance with the provisions of Directive 79/117/EEC and Directive 76/769/EEC. **(ii)** The content of free formaldehyde in products or preparations used in the panels shall not exceed 0,3 % (w/w). The content of free formaldehyde in binding agents, adhesives, and glues for plywood panels or laminated wood panels shall not exceed 0,5 % (w/w).	**(d)** ***Use of hazardous substances and preparations in the production of wood-based materials*** (i) Current criterion 3 (d) (i) has been integrated in proposal criterion 2 (d) regarding hazardous substances. (ii) The content of free formaldehyde in products or preparations used in the panels shall not exceed 0,2 % (w/w). The content of free formaldehyde in binding agents, adhesives, and glues for plywood panels or laminated wood panels shall not exceed 0,2 % (w/w).
	(e) ***Formaldehyde emission from untreated raw wood-based materials*** Wood-based materials are only allowed in a piece of furniture if they comply with the following requirements: (i) Particleboard: the emission of formaldehyde from particle boards in their raw state, i.e. prior to machining or coating, shall not exceed 50 % of the threshold value that would allow it to be classified as E1 according to standard EN 312.	***(e) Formaldehyde emission from untreated raw wood-based materials*** Wood-based materials are only allowed in a piece of furniture if they comply with the following requirements: i. The emission of formaldehyde from particle and fibreboards in their raw state, i.e. prior to machining or coating, shall not exceed 50% of the threshold valued that would allow it to be

	(ii) Fibreboard: the emission of formaldehyde form fibreboard(s) in their raw state, ie prior to machining or coating shall not exceed 50% of the threshold value that would allow it to be classified as E1 quality according to EN 622-1. However, fibreboard(s) classified as E1 will be accepted if they do not represent more than 50% of the total wood and wood-based materials used in the product. **(f)** The product shall not contain GMO wood.	classified as E1 according to the European standards indicated in table 2 below. (f) ***Formaldehyde emission for Surface Treatments*** Current criterion 4 (c) has been integrated here with a horizontal approach. Propose a more restrictive limit for formaldehyde emissions from substances and preparations for surface treatment liberating formaldehyde (< 0.05 ppm). **(g)** ***Genetically modified wood*** NO CHANGES PROPOSED. The product shall not contain GMO wood.
4. Criteria for Surface Treatments	Surface treatment refers to the surface treatment process either of single parts/components of furniture or of the furniture as a whole. **(a)** ***Surface treatment with plastic and metals*** Plastics and metal shall be allowed in a percentage up to 2 % of the total weight of the piece of furniture. They must comply with the general requirements on hazardous substances stated in Section 2.	**(a)** ***Surface treatment with plastic and metals*** - This criterion has been integrated in section 2 regarding hazardous substances. - The percentage of allowed plastic and metal furniture will be removed due to the possible extension of this product group according to the proposal scope.

	(b) *Other surface treatments than plastics and metals* This criterion is linked to the coating of the furniture and wood materials. **(i) Hazardous substances and preparations (including VOC content)** All materials, substances and preparation used must comply with the requirements on hazardous substances set out in section 2. In addition, chemical substances classified as harmful for the environment by the chemical manufacturer/supplier in accordance with Community classification system (28th Amendment to Directive 67/548/EEC) shall comply with one of the 2 following limits: — Chemical substances classified as harmful for the environment in accordance with Directive 1999/45/EC must not be added to substances and preparations for surface treatment. Nevertheless the products may contain up to 5 % volatile organic compounds (VOC) as defined in Council Directive 1999/13/EC. If the product requires dilution, the contents of the diluted product must not exceed the aforementioned threshold values. — The applied quantity (wet paint/varnish) of environmentally harmful substances in accordance with Directive 1999/45/EC shall not exceed 14 g/m2 surface area and applied quantity (wet paint/varnish) of VOC shall not exceed 35 g/m2.	**(b) *Other surface treatments than plastics and metals*** i. All materials, substances and preparations used must comply with the requirements on hazardous substances set out in proposal criterion 2. ii. Chemical substances classified as harmful for the environment (hazard statements: H400, H410, H411, H412, H413 and EUH059)by the manufacturer/supplier in accordance with CLP regulation shall comply with one of the two following limits: - Chemical substances classified as harmful for the environment in accordance with CLP regulation or Directive 1999/45/EC must not be added to substances and mixtures for surface treatment. Nevertheless, the products may contain up to 5 % volatile organic compounds (VOC) as defined in Council Directive 1999/13/EC. If the product requires dilution, the contents of the diluted product must not exceed the aforementioned threshold values. - The applied quantity (wet paint/varnish) of environmentally harmful substances in accordance with CLP Regulation shall not exceed 10 g/m² surface area and applied quantity (wet paint/varnish) of VOC shall not exceed 30 g/m². iii. **Assembly of furniture**: Current criterion 5 (b) has been integrated here with a horizontal approach. The VOC content of adhesives used in the assembly of

		furniture shall not exceed 3% (w/w).
	(c) *Formaldehyde* Formaldehyde emissions from substances and preparations for surface treatment liberating formaldehyde shall be less than 0,062 mg/m³.	**(c) *Formaldehyde*** Current criterion 4 (c) has been integrated in proposal criterion 3 (e) regarding material requirements.
	(d) *Plasticizers* If any plasticizer substance in the manufacturing process is applied, phthalates must comply with the requirements on hazardous substances set out in section 2. Additionally DNOP (di-n-octyl phthalate), DINP (di-isononyl phthalate), DIDP (di-isodecyl phthalate) are not permitted in the product.	**(d) *Plasticizers*** This criterion has been integrated in proposal criterion 2 regarding hazardous substances.
	(e) *Biocides* Only biocidal products containing biocidal active substances included in Annex IA to Directive 98/8/EC of the European Parliament and of the Council and authorised for use in furniture, shall be allowed for use.	**(e) *Biocides*** This criterion has been integrated in proposal criterion 2 regarding hazardous substances.
5. Criteria for the Assembly of Furniture	This criterion is linked to the gluing of components included in the assembly of furniture. i.e. adhesives. **(a) *Hazardous substances in additives and binding agents*** They must comply with the requirements set out in section 2 on hazardous substances.	**(a) *Hazardous substances in additives and binding agents*** This criterion has been integrated in proposal criterion 2 regarding hazardous substances.

	(b) *VOC* The VOC content of adhesives used in the assembly of furniture shall not exceed 5 % (w/w).	**(b) *VOC*** This criterion has been integrated in proposal criterion 4 (b) (iii) regarding assembly of furniture.
6. Criteria for the final Product	**(a) *Durability and safety*** The product shall fulfil the requirements on durability, strength, safety and stability in EN /ISO standards applicable to the usage of the product. An evaluation of the product´s durability, strength, safety and stability on the basis of the design and choice of materials shall be performed by an independent test institution. **(b) *Maintenance*** Maintenance of products shall be possible without organic based solvents. The manufacturer shall guarantee the possibility of acquiring spare part (original functional items or items fulfilling equivalent functions) upon request for a period of 5 years.	**(a)**Durability and safety All products shall fulfil the requirements on durability, strength, safety and stability in EN standards applicable to the usage of the product. If no EN standard exists, the requirements in ISO standards shall be used. If no EN or ISO standard exists, an evaluation of the product´s durability, strength, safety and stability on the basis of the design and choice of materials shall be performed by an independent test institution. For chairs and tables designated to be used in offices and schools, products shall fulfil the requirements on ergonomics and fitness for use according to current EN and ISO standards. The user manual will provide the list of norms and standards which shall be used for the durability assessment. **(b)** Ergonomics and fitness for use: products shall fulfil the requirements on ergonomics and fitness for use according to current EN and ISO standards. The user manual will provide the list of norms and standards which shall be used for the durability assessment. **(c) *Maintenance*** Maintenance of products shall be possible without organic based solvents. The manufacturer shall guarantee the possibility of acquiring spare part (original functional items or items fulfilling equivalent functions) upon request throughout the actual period of their industrial manufacturing and for a period of 5 years as of the date when production of the relevant range is stopped. The product shall be easy to assembly and disassembly. Assembly should be done

		by reversible methods (screws) in order to allow disassembly and remanufacturing.
	(c) *Recycling and waste* The product must be easily recyclable. A detailed description of the best ways to dispose of the product shall be given.	**(d) *Recycling and waste*** The product must be easily recyclable. A detailed description of the best ways to dispose of the product (reuse, recycling, take back initiative by the applicant, energy production) shall be given to the consumer, ranking them according to their impact on the environment. For each option the precautions to be taken to limit the impact on the environment will have to be clearly stated. All parts of different materials should be easily separated in order to guarantee recyclability. Plastics parts weighting more than 50g must be visibly labeled in accordance to ISO 11469 or equivalent and must not contain additions of other materials that may hinder their recycling.
	(d) *Consumer information* The following information shall be supplied with the Ecolabelled product: — Information on the fitness for purpose, on the basis of domestic or contract use (light or heavy, indoor or outdoor); — Information on cleaning and care; — Instruction for the replacement of glass (if any) upon request in case of damage or breakage from manufacturer or retailer; — Instruction that the local authorities should be contacted on the best way to dispose of old furniture and materials; — Instruction for assembly; — Best use from an ergonomic point of view, where relevant; — Name of the species of solid wood; — Indicate any treatments or preservatives that have been used on outdoor products (chemical, biological or physical); — Recommendation that the consumer use EU Ecolabelled	**(e) *Consumer information*** — Instruction for the replacement of all replaceable parts (glass, textiles, if any) upon request in case of damage or breakage from manufacturer or retailer; - instructions for assembly and disassembly

	products for future preservation of the furniture. **(e) *Packaging of the final product*** Packaging must fulfil the following requirements: **(i)** Made out of one of the following: — easily recyclable material; — materials taken from renewable resources; — materials intended to be reusable, such as textile coverings. **(ii)** All materials shall be easily separable by hand in recyclable parts consisting of one material (e.g. cardboard, paper, plastic, textiles). **(f) *Information on the packaging*** The following text shall appear on the packaging: 'For more information as to why this product has been awarded the Flower, please visit the website: http://www. ecolabel.eu' The following text (or equivalent text) shall also appear on the packaging and in the user manual: 'For more information visit the European Eco-label website. Additional information can be obtained at: name/address of the consumer department of the applicant'. **(g) *Information appearing on the eco-label*** Box 2 of the Eco-label shall contain the following text: — Wood from well managed forests; — restricted hazardous substances; — product tested for durability.	**(e) *Packaging of the final product*** NO CHANGES PROPOSED. **(f) *Information on the packaging*** NO CHANGES PROPOSED. **(g) *Information appearing on the eco-label*** Some proposals are: - Products tested for durability, safety and ergonomics (if ergonomics are included in criterion (a)) - Minimum energy impact (if energy consumption requirements are set as additional criterion (see new/additional proposed criteria below) - Wood from sustainable managed forests

		- Limited use of substances of concern
New Proposal for addition in criterion number 3 for Material Requirements	-	**Proposal for addition in criterion number 3 for Material Requirements** ✓ **PLASTIC MATERIALS** ***Requirements where the final product contains more than 10% by weight plastic:*** i. *Plastic materials must consist of at least 50% by weight recycled materials.* ✓ **METAL MATERIALS** Small pieces (<50g) should not be encompassed by the requirements of this section. ***Requirements where the final product contains more than 50% by weight metal*** *i. 50% of aluminum and steel must be recycled metal.* *ii. Other metals: 20% must be recycled metal.* ✓ **UPHOLSTERY FABRICS** ○**TEXTILES** Textiles shall comply with the requirements set for the specific fibre types according to the EU Ecolabel on textiles[13] currently under final revision. ○**LEATHER** Due to a limited market share, it will be proposed that leather shall not be included in upholstery fabrics. ✓**PADDING MATERIALS**

[13] 2009/567/EC: Commission Decision of 9 July 2009 establishing the ecological criteria for the award of the Community Ecolabel for textile products, available online at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0567:EN:NOT

		Padding materials shall comply with the EU Ecolabel criteria for bed mattresses and comply with the requirements set for the latex and polyurethane foams. ✓ **GLASS** - Glass shall be readily replaceable - Discuss if glass shall be recyclable - Discuss if a minimum of % of recycled glass can be proposed. ***Requirements where the final product contains more than 10% by weight glass*** - *No lead glazing, crystal glass, mirror glass, shall be used.* - *Discuss if wire-reinforced and laminated glass can be used if it is required by law in order to meet specific safety requirements.*
New Proposal for addition in criterion number 2 for hazardous substances	-	***Packaging requirements in function of the material used:*** ○ **Plastic:** shall comply with requirements set out in criterion 2 sections a), b) and c). ○ **Paper/cardboard packaging:** Chlorine gas shall not be used as a bleaching agent.
NEW ADDITIONAL Proposal criterion: Nanomaterials.	-	Based on the precautionary principle, the product should not contain manufactured nanomaterials intentionally added in order to provide a new functionality.
NEW ADDITIONAL Proposal criterion: Introduction of new requirements concerning energy consumption on materials,		**i)Limitation of energy embodied in materials used.** Energy embodied in materials present in the final product should not exceed the limits defined for each furniture group *(to be defined).* Energy embodied in the product will be calculated with the following formula:

furniture manufacturing and or use (lighting).		$E = \Sigma W_i \times F_i$ Where: i: each material Wi: weight of each material Fi: energy factor for each material *(to be defined)* **ii)Lighting sources in furniture**: In the case where a lighting function is available in the product, fittings must be equipped with light sources classified with energy class A, according to REGULATION (EU) No 874/2012 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of electrical lamps and luminaries.

1 REVISION OF EXISTING DEFINITION AND SCOPE FOR EU ECOLABEL AND GREEN PUBLIC PROCUREMENT

At present in the EU Ecolabel criteria document for 'wooden furniture' the following definition and scope are given:

Current definition:

The product group of 'wooden furniture' shall comprise free-standing or built-in units, which are used for storing, hanging, lying, sitting, working and eating of domestic furniture, whether for indoor or outdoor use, or used indoors for business purposes. Business purposes shall include office and school furniture as well as furniture for restaurants and hotels.

The following conditions shall be fulfilled:

(a) The product shall be made of at least 90 % w/w solid wood or wood-based materials. Glass, if easily replaceable in case of damage or breakage, may be excluded from the weight calculation as may technical equipment and fittings.

(b) The weight of any individual material, other than solid wood and wood-based materials, shall not exceed 3 % of the total weight of the product. The total combined weight of such materials shall not exceed 10 % of the total weight of the product.

Proposal for new definition and scope

The product group of 'furniture' shall comprise free-standing or built-in units, which are used for storing, hanging, lying, sitting, working and eating of domestic furniture, whether for indoor or outdoor use, or used indoors for business purposes. Business purposes shall include all kinds of furniture whose primary function is to be used as furniture, for instance furniture for office, school, restaurants, hotels, libraries, theatres, cinemas, etc.

Specific types of products whose primary function is other than furniture is excluded from the scope (e.g. streetlights, bike-parks, playground equipment, building products - steps, walls, panels -, carpets).

Different types of materials can be used for the furniture such as wood and wood-based materials, metal, plastic, padding materials, textile and glass. Furniture can also contain other components made, for instance, of stone, bamboo or willow.

In order for a furniture product to be marketed as EU Ecolabelled, the whole product shall be approved. Textiles, padding materials and paints used in the furniture shall meet the European Ecolabel for textiles[14], bed mattresses[15] (regarding latex and PUR foams

[14] 2009/567/EC: Commission Decision of 9 July 2009 establishing the ecological criteria for the award of the Community Ecolabel for textile products, more information available online at: http://ec.europa.eu/environment/ecolabel/products-groups-and-criteria.html

corresponding to criterion 1 and 2 respectively) and paints[16] respectively, providing compliance with the criteria in order for the whole product to be approved.

Moreover, a change of the product group name from “wooden furniture” to “furniture” is proposed.

Rationale and discussion:

It is important that the scope is unambiguous as well as representative for the whole market. Furniture often consists of different materials. Wood and wood-based materials are the most common, followed by metals and plastics. Therefore, it is reasonable to extend the product group scope and definition in order to allow the inclusion of furniture made of commonly used materials, together with padding materials (upholstery furniture) and textiles. However, proper criteria shall be formulated for every material included in the scope in order to guarantee that the extension of the scope does not result in increasing the environmental impact of potentially Ecolabelled furniture products.

According to the LCA screening, in general, the environmental impacts of furniture are associated mostly with the production and treatment of raw materials used in the manufacturing, rather than with the assembling of the furniture itself. Therefore, the focus in the revision will be given to the environmental performance of the raw materials used in furniture and the applied finishing treatments.

For the scope definition, it is important to take into account types of furniture with greater market shares (e.g. furniture for dining rooms, living rooms and bedrooms, kitchens, seats, office furniture). For this reason, business purposes shall not only include offices, schools, hotels and restaurants. It will also include all kinds of furniture whose primary function is to be used as furniture, for instance furniture for libraries, theaters, cinemas, etc.

Specific types of products whose primary function is not to be used as a piece of furniture should be excluded from the scope (e.g. streetlights, bike-parks, playground equipments, building products - steps, walls, panels -, carpets). Separate criteria have been drafted for carpets under the EU Ecolabel for textile floor coverings[17] and consequently it should be out of the scope of the product group under revision.

Playground equipment includes swings, slides and other outdoor equipment. This equipment should be excluded from the scope mainly because the primary function is not

[15] 2009/598/EC: Commission Decision of 9 July 2009 establishing the ecological criteria for the award of the Community Ecolabel for bed mattresses, more information available online at: http://ec.europa.eu/environment/ecolabel/products-groups-and-criteria.html

[16] 2009/544/EC: Commission Decision of 13 August 2008 establishing the ecological criteria for the award of the Community eco-label to indoor paints and varnishes, more information available online at: http://ec.europa.eu/environment/ecolabel/products-groups-and-criteria.html

[17] 2009/967/EC: Commission decision of 30 November 2009 on establishing the ecological criteria for the award of the textile floor coverings, more information available online at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:332:0001:0016:EN:PDF

for storing, hanging, lying, sitting, working or eating as indicated in the proposed definition. For the same reason, streetlights and bike-parks will be out of the scope.

Finally, building products have another function than a piece of furniture and are outside the definition for this reason.

Based on the outcome of the questionnaire[18], the possible scope extension was in general welcomed by stakeholders.

In the questionnaire, it was initially proposed to reduce the current threshold (90% w/w) for wood content to, 50% w/w as in the Blue Angel. However, stakeholders stated that the scope extension to other types of furniture would lower the relevance of percentage of wood. The proposal is to cancel every condition on minimum content of wood, because including limits for materials would narrow the scope. Moreover, a minimal percentage of weight is not suitable for the furniture manufacturers as they have to combine different materials in a wide range, or on the other hand, many furniture items will have no wood at all. It was also indicated by the stakeholders that the 90% w/w threshold for wood was the main reason why industry did not apply for the EU Ecolabel (only one license was given).

The market analysis shows that 56% of the production volume is classified as wooden furniture. However, according to the results of a market questionnaire[19] answered by two European furniture associations representing over 2,900 furniture manufacturers and seven other manufactures, only a few products are composed of at least 90% by weight of wood. Consequently, the current scope does not cover a significant share of the (wooden) furniture in the market. The extension of the scope (from wooden furniture with a minimum content of 90% w/w of wood to furniture made of several materials) could increase the potential market share of Ecolabel with at least 44%. This will encourage the environmental improvement of a broader share of the furniture sector.

Plastic and metals are non-renewable natural resources whereas wood from sustainable forestry operations is a renewable natural resource. However, using plastic and metal for furniture might offer certain advantages. Plastic and metal furniture require less maintenance than wooden furniture. According to the LCA screening, the biggest potential environmental benefits regarding plastic and metal are achieved during the production of the material and the use of recycled materials. The main environmental benefits of using recycled metals and plastics are the energy savings from production of primary materials, the reduction of non-renewable resource extraction and the reduction of final waste streams.

A harmonized approach for the definition and scope for the EU Ecolabel and GPP is proposed.

The following exemptions from certain criteria on materials shall apply:

[18] See appendix I: Results of questionnaires to analyze the existing scope and criteria for furniture

[19] For more information see details in "Background document", available online at the project's website: http://susproc.jrc.ec.europa.eu/furniture/whatsnew.html

Current exemptions:

i. Materials, other than solid wood and wood-based materials, and other than those covered by the criteria for surface treatments and for the assembly of furniture, which account for less than 3% of the total weight of the eco-labelled product may be exempt from compliance with "wood and wood-based material requirements".

ii. Materials, other than fixtures, such as screws and nails, and metal hardware for sliding doors and drawers are exempt from compliance with all criteria on materials.

Proposal for exemptions

i. Plastic which account for less than 10% the total weight of the eco-labelled product may be exempt from compliance with the recycled materials content.

ii. Metals which account for less than 50% the total weight of the eco-labelled product may be exempt from compliance with the recycled materials content.

iii. Fixtures, such as screws and nails, and metal hardware for sliding doors and drawers are exempt from compliance with all criteria on materials.

iv. Glass, even easily replaceable in case of damage or breakage, shall not be excluded from the weight calculation as may occur with technical equipment and fittings.

Rationale and discussion:

- Taken into account the possible scope extension to glass materials, it will be important to describe which materials are used, together with their respective weights. All materials used in the product should be reported, including replaceable parts such as glass elements.
- Glass can be an important component in some furniture and can have relevant contribution to environmental impacts. Based on the LCA results, glass should be not excluded "a priori" from the scope and the weight calculation due to relevant impacts that may be associated with the use of this material.
- Glass production is highly energetic, since processes are done at high temperatures. Glass requires elevated consumption of natural resources and mining activities entails the use and destruction of large areas of land, altered morphology and physical chemistry soil, air pollution and the infiltration of polluted water to groundwater.
- In furniture, different types of treated flat glass can be used (e.g. mirrored glass, laminated glass, etc.). Some of these glasses can contain hazardous substances such as heavy metals assessed in criterion 2 for hazardous substances and also in the newly developed criterion 3 for material requirements.

- 74% of stakeholders that answered the questionnaire[20] agreed to include in the scope and in the weight calculation glass components as well as other replaceable pieces.
- Rationale for the exemption from compliance with the recycled materials content for plastic and metals which account respectively for less than 10% and 50% of the total weight of the product; this is assessed in section 4 for new additional proposed criteria and shows alignment with the Nordic Ecolabel.

[20] See appendix I: Results of questionnaires to analyze the existing scope and criteria for furniture

2 REVISION OF EXISTING CRITERIA OF EU ECOLABEL AND GREEN PUBLIC PROCUREMENT

In this section, the current EU Ecolabel criteria are reviewed and discussed. Revised and new criteria are proposed, together with possible points for discussion.

CRITERION 1 : PRODUCT DESCRIPTION

Current criteria:

A description of the product shall be provided (functional description, product name or reference code; if various types of the same product are available a description of the subtypes to which the application applies). Information shall be provided on the total weight of the product, the materials used in the product, including fixtures and fittings, and their respective weight.

Remark:
According to the current definition of wooden furniture: "*Glass, if easily replaceable in case of damage or breakage, may be excluded from the weight calculation as may technical equipment and fitting*".

Proposal for criterion 1: Product description

No changes proposed for the product description.

Remark:

According to the proposal for exemptions and the possible scope extension: Glass, even if easily replaceable in case of damage or breakage, shall not be excluded from the weight calculation as may occur with technical equipment and fittings.

Rationale and discussion:

As stated above, taken into account the possible scope extension, it will be important to describe which materials are used, together with their respective weights, also for glass materials. All materials used in the product should be reported, including replaceable parts, e.g. glass elements or textile parts.

CRITERION 2: HAZARDOUS SUBSTANCES

The criterion in the current EU Ecolabel on hazardous substances is structured in different parts a), b) and c). These parts will be revised as such. Other current criteria like 3 c), 3 d), 4 a), 4 d), 4 e) and 5 a) will be merged in the revised criterion 2 complying with requirements and restrictions regarding hazardous substances.

Current criterion 2 (a):

a) No substances or preparations that are assigned, or may be assigned at the time of application, any of the following risk phrases (or combinations thereof) may be added to the wooden product:

R23: (toxic by inhalation)	R48 (danger or serious damage to health by prolonged exposure)
R24: (toxic in contact with skin)	R49 (may cause cancer by inhalation)
R25: (toxic if swallowed)	R50 (very toxic to aquatic organisms)
R26: (very toxic by inhalation)	R51 (toxic to aquatic organisms)
R27: (very toxic in contact with skin)	R52 (harmful to aquatic organisms)
R28: (very toxic if swallowed)	R53 (may cause long-term adverse effects in the aquatic environment)
R39 (danger of very serious irreversible effects)	R60 (may impair fertility)
R40 (limited evidence of a carcinogenic effect)	R61 (may cause harm to the unborn child)
R42 (May cause sensitisation by inhalation)	R62 (possible risk of impaired fertility)
R43 (May cause sensitisation by skin contact)	R63 (possible risk of harm to the unborn child)
R45 (may cause cancer)	R68 (possible risk of irreversible effects)
R46 (may cause heritable genetic damage)	

as laid down in Council Directive 67/548/EEC (Dangerous Substance Directive) and considering Directive 1999/45/EC (Dangerous Preparations Directive).

Alternatively, classification may be considered according to Regulation (EC) N° 1907/2006 on classification, labelling and packaging of substances and mixtures, amending and repealing directives 67/548/EEC and 1999/45/ECC. In this case no substances or preparations may be added to the raw materials that are assigned, or may be assigned at the time of application, with and of the following hazard statements (or combinations thereof): H300, H301, H310, H311, H317, H330, H331, H334, H351, H350, H340, H350i, H400, H410, H411, H412, H413, H360F, H360D, H361f, H361d, H360FD, H361fd, H360Fd, H360Df, H341, H370, H372.

Proposal for Criterion 2 for hazardous substances and mixtures

a) Hazardous substances and mixtures

According to the Article 6(6) of Regulation (EC) No 66/2010 the EU Ecolabel, the product of any component of it shall not contain substances meeting the criteria for classification with the hazard statements or risk phrases specified in table below in accordance with Regulation (EC) No 1272/2008 or Directive 67/548/EC[21] nor shall

[21] OJ 196, 16.8.1967, p. 1

contain substances referred to in Article 57 of Regulation (EC) No 1907/2006. The risk phrases in Table below generally refer to substances. However, if information on substances cannot be obtained, the classification rules for mixtures apply.

Substances or mixtures which change their properties through processing and thus become no longer bioavailable, or undergo chemical modification in a way that removes the previously identified hazard are exempted from criterion 2 (a).

List of hazard statements and risk phrases:

Hazard Statement[1]	**Risk Phrase**[2]
H300 Fatal if swallowed	R28
H301 Toxic if swallowed	R25
H304 May be fatal if swallowed and enters airways	R65
H310 Fatal in contact with skin	R27
H311 Toxic in contact with skin	R24
H330 Fatal if inhaled	R23/26
H331 Toxic if inhaled	R23
H340 May cause genetic defects	R46
H341 Suspected of causing genetic defects	R68
H350 May cause cancer	R45
H350i May cause cancer by inhalation	R49
H351 Suspected of causing cancer	R40
H360F May damage fertility	R60
H360D May damage the unborn child	R61
H360FD May damage fertility. May damage the unborn child	R60/61/60-61
H360Fd May damage fertility. Suspected of damaging the unborn child	R60/63
H360Df May damage the unborn child. Suspected of damaging fertility	R61/62
H361f Suspected of damaging fertility	R62
H361d Suspected of damaging the unborn child	R63
H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.	R62-63
H362 May cause harm to breast fed children	R64
H370 Causes damage to organs	R39/23/24/25/26/27/28
H371 May cause damage to organs	R68/20/21/22
H372 Causes damage to organs 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
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
Sensitising substances	
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled	R42
H317: May cause allergic skin reaction	R43

[1] *Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006*

[2] *Directive 67/548/EEC with adjustment to REACH according to Directive 2006/121/EC and Directive 1999/45/EC as amended*

b) Substances listed in accordance with Article 59(1) of Regulation (EC) 1907/2006

No derogation from the exclusion in Article 6(6) of Regulation (EC) No 66/2010 shall be given concerning substances identified as substances of very high concern and included in the list provided for in Article 59(1) of Regulation (EC) No 1907/2006[22], present in mixtures, in an article or in any homogeneous part of a complex article in concentrations higher than 0.1% w/w. Specific concentrations limits determined in accordance with Article 10 of Regulation (EC) No 1272/2008 shall apply in cases where the concentration is lower than 0.1%.

Rationale and discussion:

Limitations on hazardous substances and mixtures need to be included in the criteria set according to all new EU Ecolabel criteria decisions developed or revised after the implementation of the new EU Ecolabel Regulation[23].

Article 6(6) of EU Ecolabel Regulation requires that certain types of substances are not allowed in ecolabelled products: "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

[22] http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp

[23] Regulation (EC) No 66/2010 of the European Parliament and of the Council of 25 November 2009 on the EU Ecolabel, available online at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:027:0001:0019:EN:PDF

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)". The list of H-statements is expanded similarly to recently developed EU Ecolabel criteria in other product groups (provided in Appendix II of this report).

Nevertheless, the EU Ecolabel Regulation recognizes also that in certain circumstances restriction of some substances may not be technically or economically viable. Therefore, Article 6(7) of the Regulation states that: "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".

Consequently, stakeholders are invited to submit derogations, motivated and accompanied by information on the function of the respective substance, content in the product and the additional rationale substantiating the request-reasons for substances which are classified as hazardous substances but cannot be substituted or eliminated, and do fulfil the conditions set in Article 6(7). A template has been provided in Appendix III of this document.

The criterion 2 (b) is based on the EU Ecolabel Regulation itself which states in its Article 6(7): “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% w/w”. As such, some specific substances are strictly and without exception excluded from the ecolabelled products and there is no room to derogate them.

Current criterion 2 (b):

b) The product must not contain halogenated organic binding agents, azidirin and polyaziridins as well as pigments and additives based on:

- lead, cadmium, chrome (VI), mercury and their compounds
- arsenic, boron, copper
- organic tin.

Proposal for Criterion 2 for Hazardous substances and mixtures
c) Specified excluded substances and mixtures The product must not contain the following substances and mixtures:

- Aziridine and polyaziridines

- Pigments and additives based on lead, cadmium, chrome (VI), mercury, arsenic, boron, copper, cobalt, organic tin, anthracene, creosote, azo dyes or compounds thereof.

- Halogenated organic compounds, including:
  - Halogenated organic polymers
  - Halogenated organic binding agents
  - Halogenated organic solvents
  - Halogenated flame retardants: Hexabromocyclododecane (HBCDD) and all major diastereoisomers, Tris(2-chloroethyl)phosphate (TCEP), alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins -SCCP) and Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE).

    Only flame retardants that are chemically bound into the matrix/material or onto the matrix/material surface (reactive flame retardants) may be used in the product. If the flame retardants used have any of the hazard statements and risk phrases listed above in proposal for revised criterion 2 (a), these reactive flame retardants should, on application, change their chemical nature to no longer warrant classification under any of these hazard statements and R-phrases.

    Flame retardants which are only physically mixed into the matrix/material are excluded (additive flame retardants).

- The following phthalates:
  - Diisobutyl phthalate (DIBP), dibutyl phthalate (DBP), benzyl butyl phthalate (BBP) and bis (2-ethylhexyl) phthalate (DEHP).
  - Dipentyl phthalate (DPP), N-pentyl-isopentylphthalate, diisopentylphthalate (DIPP) and bis(2-methoxyethyl)phthalate.
  - Diisononyl phthalate (DINP), diisodecyl phthalate (DIDP) and di-n-octyl phthalate (DOP or DnOP).

- 4,4'- Diaminodiphenylmethane (MDA)

- Bisphenol A and compounds thereof

- Pentadecafluorooctanoic acid and its salts (PFOA and APFO)

Rationale and discussion:

The specified substances and mixtures included in the current EU Ecolabel are kept based on the following rationale:

- Aziridine and polyaziridines must not be added to the product: Aziridine, according to harmonized classification of table 3.1 of Annex VI of CLP regulation, is classified as: Flam. Liq. 2, Carc. 1B, Muta. 1B, Acute Tox. 2, Acute Tox. 1, Skin Corr. 1B and Aquatic Chronic 2 (H225, H350, H340, H330, H310, H300, H314 and H411). Aziridine is mainly used in polymerization products as a monomer for polyethyleneimine (polyaziridines), in paper and textile chemicals, adhesives, binders, coating resins, varnishes, lacquers and surfactants.

- Pigments and additives based on lead, cadmium, chrome (VI), mercury, arsenic, boron, copper and organic tin or compounds thereof, must not be present in the product: Heavy metals can accumulate in the environment and cause serious damages to ecosystems and human health. One of the largest problems associated with the persistence of heavy metals is the potential for bioaccumulation causing heavier exposure for some organisms than is present in the environment alone. High concentrations of one or more heavy metals in a soil may lead to toxic effects in plants and animals. Tributyltin compounds were the main active ingredients in certain biocides to control a broad spectrum of organisms. Uses include wood preservation, antifouling pesticide in marine paints and antifungal action in textiles. However, this use is now prohibited in the EU as it was not notified under the Biocidal Products Directive. These compounds are included in the Rotterdam Convention. TBT compounds are considered toxic chemicals which have negative effects on human and environment. In addition, TBT compounds elicit effects in the endocrine systems of aquatic organisms and are moderately to highly persistent organic pollutants causing irreversible damage to the aquatic life.

  Bis(tributyltin) oxide (TBTO) was identified as a Substance of Very High Concern (SVHC) meeting the criteria of a PBT substance pursuant to Article 57 (d) and was therefore included in the candidate list for authorization. TBTO is currently only used in the EU as an intermediate for manufacture of other chemicals. According to the background document for bis(tributyltin) oxide (TBTO)[24], in 2001, TBT concentrations in water and sediment were 3.62 mg/L and 10.8 mg/kg respectively, with maximum concentration of 53 mg/kg TBT in harbours (Norwegian Competent Authority, 2008). However, due to strongly reduced uses of TBT, also declining trends in sediment TBT concentrations were identified, e.g. in many German rivers, TBT sediment concentrations were already below 0.005 mg/kg in 2003 (Norwegian Competent Authority, 2008).

- Chrome (VI) exists as hydrochromate (HCr O4-), chromate (CrO4 2-), and dichromate (Cr2O7 2-) ionic species. Chrome (VI) is known to cause severe allergic contact dermatitis in humans and to be able to elicit dermatitis at very low concentrations. Leather goods coming into close prolonged contact with the skin are expected to give rise to the highest

[24] Document developed in the context of ECHA´s first recommendation for the inclusion of substances in Annex XIV, more information available online at: http://echa.europa.eu/documents/10162/0ba7c534-4ffa-4b66-b773-653015869d01

exposure of consumer. Examples also include leather cover for seats and furniture, representing a risk for the development of contact allergy to chromium for the consumers. A range of chrome (VI) compounds are on the SVHC candidate list and Annex XV dossiers have been prepared for more than 15 chrome (VI) compounds. Some examples of pigments containing chrome (VI) are lead chromate, lead sulfochromate yellow (C.I. Pigment Yellow 34) and lead chromate molybdate sulphate red (C.I. Pigment Red 104) all included in the authorization list[25] under REACH regulation meeting the criteria of carcinogenic and toxic for reproduction pursuant to Article 57 (a) and (c) of REACH. The listed potential applications include paints and varnishes, printing inks, vinyl and cellulose acetate plastics, textile printing, leather finishing and paper. Some others chrome (VI) compounds included in the authorisation list of SVHC are: ammonium dichromate, acids generated from chromium trioxide and their oligomers (group containing: Chromic acid, Dichromic acid, Oligomers of chromic acid and dichromic acid), chromic trioxide, potassium chromate, potassium dichromate, sodium chromate and sodium dichromate.

Sodium dichromate is an additive based on chrome (VI) included in the authorisation list[26] and used mainly as an ingredient in the production of:

- Metal finishing: aids corrosion resistance, helps clean metal surfaces and promotes paint adhesion
- Pigments: used in the manufacture of inorganic chromate pigment where it produces a range of light stable colors. Also some chromate grades are used as corrosion inhibitors in undercoats and primers.
- Ceramics: used in the preparation of colored glass and ceramic glazes.
- Textiles: used as a mordant for acidic dyes to improve their color-fast properties.
- Leather tanning: dichromate and chromate salts are oxidizing agents used for the tanning of leather.

- Diarsenic pentaoxide and diarsenic trioxide are used in glass products and included in the authorisation list meeting the criteria of carcinogenic pursuant to Article 57 (a) of REACH.

Others substances and mixtures are added with a given rationale as follows:

- Pigments and additives based on anthracene, creosote, azo dyes and cobalt or compounds thereof must not be present in the product:

[25] Authorization list of Substances of Very High Concern included in Annex XIV of REACH regulation. More information available online at: http://echa.europa.eu/es/addressing-chemicals-of-concern/authorisation/recommendation-for-inclusion-in-the-authorisation-list/authorisation-list

[26] For more information, see background document Annex XV for sodium dichromate available online at: http://echa.europa.eu/documents/10162/f766669e-74c2-4a40-847a-5a285af3da2b

- Anthracene is used as a precursor for dyes (black pigments) and coating materials. Anthracene is included in the candidate list of substances of very high concern meeting the criteria of a PBT substance pursuant to Article 57(d) of REACH.

- Creosote is made from coal tar or from wood tar. Coal tar creosote contains polycyclical aromatic hydrocarbons (PAH´s) which are genetically harmful for humans, affect the immune system and reproductive ability and are carcinogenic. Creosote and its compounds from coal tar contain substances classified as toxic and carcinogenic depending on the PAH content. According to table 3.1 of Annex VI of CLP Regulation, creosote (distillate of coal tar with EC number: 232-287-5 and CAS number: 8001-58-9) is classified as : Carc. 1B (H350).

  Wood tar creosote contains substances such as cresol, phenols and guaiacol. According to table 3.1 of Annex VI of CLP Regulation, cresol is classified as: Acute Tox 3 and Skin Corr. 1B (H311, H301, H314), phenol is classified as: Muta. 2, Acute Tox. 3, STOT RE 2 and Skin Corr. 1B (H341, H331, H311, H301, H373 and H314). Finally, guaiacol is classified as Acute Tox. 4, Eye Irrit. 2 and Skin Irrit. 2 (H302, H319 and H315).

  Legislative authorities have issued restrictions for the use of creosote. Tar oils containing more than 50 mg/Kg benzo(a)pyrene were banned in Europe. Creosote is included in the REACH Restriction list[27] according to its Annex XVII.

- Azo dyes are the name of the most important group of synthetic dyes and pigments based on nitrogen representing 60-80% of all organic colorants. They are used widely in substrates such as textile fibres, leather, plastics, papers, hair, mineral oils, waxes, foodstuffs and cosmetics. Some azo dyes may separate under certain conditions to produce carcinogenic and allergenic aromatic amines. The EU Azo colorants Directive 2002/61/EC[28] sets out that Azo dyes which may release one or more of the 22 aromatic amines in detectable concentrations, above 30 ppm in the finished articles or in the dyed components may not be used in textiles and leather articles which may come into direct and prolonged contact with the human skin or oral cavity. The Directive came into force in September 2003. Since Annex XVII of REACH came into force in 2009, the AZO Directive 2002/61/EC has

[27] List of restrictions according to REACH regulation: http://www.echa.europa.eu/web/guest/addressing-chemicals-of-concern/restrictions/list-of-restrictions/list-of-restrictions-table

[28] Directive 2002/61/EC of the European Parliament and of the council of 19 July 2002 amending for the nineteenth time Council Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations (azocolourants), more information available online at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:243:0015:0018:EN:PDF

been replaced by REACH regulation. Azo dyes are included in the REACH Restriction List[29].

- Cobalt (II) cations are genotoxic under in vitro and in vivo conditions, and have carcinogen, mutagen and reproduction toxicant (CMR) properties. Moreover, the cobalt (II) compounds are considered skin and eye irritants and dermal/inhalatory sensitisers. Some of the cobalt compounds that are currently in the candidate list, meeting the criteria of carcinogenic and toxic for reproduction pursuant to Article 57 (a) and (c) of REACH are: cobalt (II) sulphate, cobalt dichloride, cobalt (II) dinitrate, cobalt (II) carbonate and cobalt (II) diacetate.

  Cobalt dichloride is used as drying agent in paints (cobalt carboxylates used as drier catalysts in alkyl based paints), pigments (organic textile dyes) and printing inks. In ceramics, frits and glass, cobalt dichloride is used in some applications as a colorant or a decolourant in the production process.

- Halogenated organic compounds are organic compounds that contain the halogens: chlorine, bromine, fluorine or iodine, including chlorinated polymers. Polyvinyl chloride, commonly known as PVC, is the third-most widely produced plastic, after polyethylene and polypropylene. It can be made more flexible by the addition of plasticizers, the most widely used being phthalates. PVC is produced by polymerization of the monomer vinyl chloride (chloroethene abbreviated as VCM) classified as Carc. 1A according harmonized CLP classification and contains 57% of chlorine. The content of chlorine may contribute to increased development of dioxins in the waste gas from the waste incineration plant. Dioxins are commonly regarded as highly toxic compounds that are environmental pollutants and persistent organic pollutants (POPs). Therefore, PVC is not suited for combustion. However the problem is that PVC waste may end in the rubbish deposited by consumers, which may be finally combusted.

  Halogenated organic compounds encompass a large number of substances that are harmful to health and environment, are highly toxic to aquatic organisms, carcinogenic or harmful to human health. Moreover, they do not degrade readily in the environment, a fact that increases the harmful effects. Halogenated organic compounds include for example:

  - Halogenated organic binding agents
  - Halogenated organic solvents: For example methylene chloride is an organic compound widely used as a solvent and blowing agent for polyurethane foams. According to table 3.1 of Annex VI of CLP regulation, methylene chloride (EC number 200-838-9, CAS number 75-09-2) is classified as Carc.2 (H351).

[29] List of restrictions according to REACH regulation: http://www.echa.europa.eu/web/guest/addressing-chemicals-of-concern/restrictions/list-of-restrictions/list-of-restrictions-table

Volatile chlorofluorocarbons: Blowing agents can be used in the production of PUR foams for upholstery furniture. The use of many chlorine-containing blowing agents, such as trichlorofluoromethane (CFC-11), was restricted by the Montreal Protocol on Substances that Deplete the Ozone Layer in the early 1990s, due to the negative impact on the ozone layer.

HFCs replaced chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs), that are phased out under the Montreal Protocol. HFCs pose no harm to the ozone layer because, unlike CFCs and HCFCs, they do not contain chlorine that depletes the ozone layer. However, they are greenhouse gases with an extremely high global warming potential and included in the Kyoto Protocol due to the recognition of halocarbon contributions to climate change.

- Halogenated flame retardants such as short chain chloroparaffins (C10-C13) and Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE) listed on the candidate list of Substances of Very High Concern and Hexabromocyclododecane (HBCDD) (and all major isomers) and tris(2-chloroethyl)phosphate (TCEP) listed in Annex XIV of REACH regulation for authorisation.

- Phthalates are typically used as plasticizers in PVC. Phthalates classified as toxic for reproduction (Article 57 (c) of REACH) such as:
    - Dibutyl phthalate (DBP), bis (2-ethylhexyl)phthalate (DEHP), benzyl butyl phthalate (BBP) and Diisobutyl phthalate (DIBP) are included in Annex XIV of REACH Regulation according to substances subjected to authorization.
    - Dipentyl phthalate (DPP), N-pentyl-isopentylphthalate, diisopentylphthalate (DIPP) and Bis(2-methoxyethyl) phthalate are included in the candidate list of SVHC.
    - Diisononyl phthalate (DINP), diisodecyl phthalate (DIDP) and di-n-octyl phthalate (DOP or DnOP) are included in Annex XVII of the REACH regulation according to substances subjected to restriction. According to this annex, toys and childcare articles containing these phthalates in a concentration greater than 0.1% by weight of the plasticized material shall not be placed on the market.
- 4,4'- Diaminodiphenylmethane (MDA) is used primarily for making polyurethane foams in upholstered furniture. Lower quantities are used as hardeners in epoxy resins and adhesives, as well as in the production of high-performance polymers. MDA is a suspected carcinogen included in the Authorisation list of substances of very high concern according to REACH.
- Bisphenol A is used in paints, varnishes, glues (binding agents and hardeners), polyol in the production of polyurethane and various plastics. According to table 3.1 of Annex VI of CLP Regulation, bisphenol A (4,4'-isopropylidenediphenol EC 201-245-8, CAS 80-05-7)

is classified as: Repr.2, STOT SE 3, Eye Dam.1 Skin Sens. 1 (H361f, H335, H318, H317). Bisphenol A can be released to the environment from the production process causing endocrine effects. The main source of terrestrial exposure is the spread of sludge from sewage treatment plants. In humans there is not a direct exposure, although bisphenol A is present in many consumer products, especially in plastics made of polycarbonates.

- Pentadecafluorooctanoic acid (PFOA) and its ammonium salt, ammonium pentadecafluorooctanoate (APFO), are included in the candidate list of SVHC meeting the criteria of toxic for reproduction and PBT pursuant to Articles 57 (c) and (d) of REACH. Perfluoroalkyl acids are used in surface treatments due to their excellent surface properties and water and oil repelling properties. The compound is also used in electric wires due to high electrical insulation properties and high ability to withstand corrosion, fire fighting foam and outdoor clothing. As a salt, it is used as an emulsifier for the emulsion polymerization of fluoropolymers such as polytetrafluoroethylene (PTFE or Teflon), polyvinylidene fluoride and fluoroelastomers.

  The stability of PFOA is desired industrially, but a cause of concern environmentally. PFOA is resistant to degradation by natural processes such as metabolism, hydrolysis, photolysis, or biodegradation making it persist indefinitely in the environment. Furthermore, they are toxic for reproduction.

Current criterion 2 (c):

c) Only flame retardants that are chemically bound into the matrix/material or onto the matrix/material surface (reactive flame retardants) may be used in the product. If the flame retardants used have any of the R-phrases listed below, these reactive flame retardants should, on application, change their chemical nature to no longer warrant classification under any of these R-phrases (less than 0,1 % of the flame retardant on the matrix/material may remain in the form as before application):

R40 (limited evidence of a carcinogenic effect)	R53 (may cause long-term adverse effects in the aquatic environment)
R45 (may cause cancer)	R60 (may impair fertility)
R46 (may cause heritable genetic damage)	R61 (may cause harm to the unborn child)R68 (possible risk of irreversible effects)
R49 (may cause cancer by inhalation)	R62 (possible risk of impaired fertility)
R50 (very toxic to aquatic organisms)	R63 (possible risk of harm to the unborn child)
R51 (toxic to aquatic organisms)	R68 (possible risk of irreversible effects)
R52 (harmful to aquatic organisms)	

As laid down in Directive 67/548/EEC and its subsequent amendments.

Flame retardants which are only physically mixed into the matrix/material are excluded (additive flame retardants).

Alternatively, classification may be considered according to Regulation (EC) No 1272/2008. In this case no substances or preparations may be added to the raw materials that are assigned, or may be assigned at the time of application, any of the following hazard statements (or combinations thereof): H351, H350, H340, H350i, H400, H410, H411, H412, H413, H360F, H360D, H361f, H361d H360FD, H361fd, H360Fd, H360Df and H341.

Proposal for criterion 2 for Hazardous substances and mixtures
The current criterion 2(c) is integrated in criterion 2(a) and 2(c) of the proposed revision.

CRITERION 3: WOOD AND WOOD-BASED MATERIAL REQUERIMENTS

The criterion in the current EU Ecolabel on wood and wood-based material requirements is structured in different parts a), b), c), d), e) and f) and will be revised as such. Later on, criteria 3 could be named "Material Requirements" instead of "wood and wood-based material requirements" and include the additional, newly developed criteria for the other materials.

Current criterion 3 (a):

a) ***Sustainable Forest management***

The producer shall have a policy for sustainable wood procurement and a system to trace and verify the origin of wood and tracking it from forest to the first reception point.

The origin of all wood shall be documented. The producer must ensure that all wood originate from legal sources. The wood shall not come from protected areas or areas in the official process of designation for protection, old growth forests and high conservation value forests defined in national stakeholder processes unless the purchases are clearly in line with the national conservation regulations.

- Until 30 June 2011, for wooden products placed on the market bearing the Ecolabel at least 50 % of any solid wood and 20 % wood-based materials must originate either from sustainably managed or from recycled materials
- From 1 July 2011, until 31 December 2012 for wooden products placed on the market bearing the Ecolabel at least 60 % of any solid wood and 30 % wood-based materials must originate either from sustainably managed or from recycled materials

- From 1 January 2013, for wooden products placed on the market bearing the Ecolabel at least 70 % of any solid wood and 40 % wood-based materials must originate either from sustainably managed forests or from recycled materials.

Proposal for criterion 3 (a) for Material Requirements

i. All type of materials (wood and wood-based products, plastic, metal, padding materials, glass and textiles) shall comply with the requirements set in section 2 regarding hazardous substances.

ii. **WOOD, WOOD-BASED AND OTHER FOREST MATERIALS**

1) ***Origin and traceability of all forest and wooden materials***

The producer shall have a policy for sustainable wood procurement and a system to trace and verify the origin of wood and tracking it from forest to the first reception point. The origin of all forest and wood materials shall be documented according to the Timber Trade Regulation (EU) No 995/2010 of the European Parliament and of the Council of 20 October 2010. The producer must ensure that all wood originate from legal sources, shall not come from protected areas or areas in the official process of designation for protection, old growth forests and high conservation value forests defined in national stakeholder processes unless the purchases are clearly in line with the national conservation regulations. This requirement also applies for Non Wood Forest Products.

2) ***Sustainable Forest management for wood and wooden materials***

- For wooden products placed on the market bearing the Ecolabel at least x% (≥ 70%) of any solid wood and y% (≥ 40%) wood-based materials must originate either from sustainably managed forests or from recycled materials.

- For other forestry and vegetal materials with no sustainable source certifications available, origin and traceability shall be provided as well as evidence of written procedures on sustainable management chain.

Rationale and discussion:

- The key environmental aspects of solid wood are mainly related to the legal and sustainable forest management. The impacts related to uncontrolled wood are loss of biodiversity, erosion and soil degradation. In March 2013 started the application of the Regulation (EU) No 995/2010 of the European Parliament and of the Council of 20 October 2010. This regulation lays down the obligations of operators who place timber and timber products on the market. It covers a wide range of timber products, including plywood, veneer, particle board and furniture. This new regulation set three main obligations for wood traders:

- It prohibits the placing of illegally harvested timber and products derived from such timber on the EU market, whether they are of domestic or imported origin.
- Timber accompanied by a FLEGT (Forest Law Enforcement, Governance and Trade) or CITES (Convention on International Trade in Endangered Species) license will be accepted as legal. In all other cases, operators must exercise 'due diligence' when they sell imported and domestic timber or timber products.
- Traders (those after the operators in the supply chain) need to keep records of their suppliers (and customers). In this way the operators can always be traced.

As these are already mandatory requirements, it could be discussed if this criterion should be maintained or not.

- Regarding the sustainable managed forest, discussions in other EU Ecolabel product groups exist on the minimum percentage of certified wood required. This indicates that the current level of at least 70% for solid wood and 40% for wood-based materials may be not stringent enough and should be revised upwards. Nevertheless, 100% certified wood is desirable, but could be difficult to reach, since limited certified wood exists from some kind of woods such as European hardwood. However, the total surface certified is growing each year (in 2013 is 247 millions ha FSC certified and 180.5 millions ha PEFC certified)[30].

  In this sense, other Ecolabel schemes fix stricter percentages (Nordic Ecolabel, FEMB). Regarding the alignment of the EU Ecolabel with other schemes, it could be set that 50% could wood-based materials must originate either from sustainably managed forests or from recycled materials.
- For wooden panels, LCA studies found that the increase in the percentage of recycled fibres bring significant environmental benefits. There is a potential reduction of 0.52 tones of CO_2 eq. per ton of panels produced with recycled fibres[31].
- Main Non Wood Forest Products (NWFP) that can be found in furniture products are bamboo, rattan, cane, wicker, hemp, osier, sisal, cork and reed. Although FSC certification is available for bamboo and cork, little certified areas are available.

Current criterion 3 (b):

b) ***Recycled wood fibres***

Post consumer wood, chips or fibres applied in the production of wood-based materials (input), shall at least comply with the provisions in the EPF Industry standard, as reported in paragraph 6 of document 'EPF Standard for delivery conditions of recycled wood' of 24 October 2002.

[30] Global FSC certificates: type and distribution July 2013. https://ic.fsc.org/facts-figures.19.htm
[31] Mitchell, A., Stevens, G. Life Cycle Assessment of Closed Loop MDF Recycling: Microrelease Trial 2009

Proposal for criterion 3 (b) for Material Requirements
b) ***Recycled wood fibres*** Propose more restrictive limits for recycled wood fibres according to the new updated European standard EN 71-3:2013 regarding the migration of certain elements.

Rationale and discussion:

According to the current criteria regarding recycled wood fibres; post consumer wood, chips or fibres applied in the production of wood-based materials (input), shall at least comply with the provisions in the EPF Industry standard, as reported in paragraph 6 of document 'EPF Standard for delivery conditions of recycled wood' of 24 October 2002. This paragraph establish the limit values of elements and substances allowed in recycled wood fibres for the production of wood-based materials as follows:

Table 2. Limit values for recycled Wood-based materials according 'EPF Standard for delivery conditions of recycled wood' of 24 October 2002.

Elements and components	Limit values (mg/Kg recycled wood-based materials)
Arsenic	25
Cadmium	50
Chromium	25
Copper	40
Lead	90
Mercury	25
Fluorine	100
Chlorine	1000
Pentachlorophenol (PCP)	5
Tal oils (benzo(a)pyrene) (creosote)	0,5

Pentachlorophenol, once widely used as a fungicide, was banned in 1987 for this use.

Impregnation oils from coal tar (known as tar oils or creosotes) were the first wood preservatives to gain industrial importance. Creosote consists of polycyclic aromatic

hydrocarbons (PAH´s) which some of these substances, especially benzo(a)pyrene was classified as carcinogenic. Therefore, legislative authorities issued restrictions for the use of creosote. Tar oils containing more than 50 mg/Kg benzo(a)pyrene were banned in Europe. Later and according to the Biocidal Products Regulation (BPR, Regulation (EU) 528/2012)[32], only biocidal products containing biocidal active substances approved by European Commission and authorised by product type shall be used for wood. Consequently, it may be still necessary to keep this criterion as imported wood can come from outside European Union where less restrictive measures apply. More restrictive limits for both substances (pentachlorophenol and creosote) can be proposed.

The use of recycled wood in the manufacture of particleboards or fibreboards requires deliveries of material to the processor to ensure that reclaimed raw materials and the finished panel product are strictly controlled in respect of contaminating chemical elements and compounds that might be present at unacceptable levels in recycled wood.

A number of national quality control schemes exist. The most prominent in Europa is the German criteria defined for purposes of the RAL- Gütezeichen label "Recyclingprodukte aus Gebrauchtholz". In the United Kingdom the wood-based panels sector supports the European Panel Federation´s (EPF) "Industry Standard for delivery conditions of recycled wood[33]", which is based on a responsible care approach. The EPF limit values reflect what are considered to be the most appropriate safety levels adopted in the European standard EN 71-3:1994 "Safety of Toys".

Technological developments in the toys market and on the scientific knowledge have raised issues regarding the safety of toys. Increased concerns from consumers lead to a revision of the EN 71-3:1994. The new EN 71-3:2013 supports the new chemical requirements of the EU Toys Safety Directive (2009/48/EC[34]), which take effect from 20 July 2013. The main changes are as follows:

- Testing now includes 19 elements (or 17 different elements, with Cr (III) and Cr (VI) and tin and organic tin counted twice).
- Migration limits have been revised, with many reduced according to Table 3:

[32] More information available online at: http://echa.europa.eu/regulations/biocidal-products-regulation

[33] EPF standard for delivery conditions of recycled wood, more information available online at: http://www.europanels.org/upload/EPF-Standard-for-recycled-wood-use.pdf

[34] Toys Safety Directive, more information available online at: http://ec.europa.eu/enterprise/sectors/toys/documents/directives/

Table 3. Comparison of the migration limit of the controlled elements in EN 71-3:2013, EN 71-3:1994 and current limits according standard for delivery conditions of recycled wood

Element	EN 71-3:2013			EN 71-3:1994		Current limits according Standard for delivery conditions of recycled wood
	Category I (mg/kg)	Category II (mg/kg)	Category III (mg/kg)	Any toy material except for modelling clay (mg/kg)	Modelling clay (mg/kg)	
Aluminum	5625	1406	70000	-	-	-
Antimony	45	11.3	560	60	60	-
Arsenic	3.8	0.9	47	25	25	25
Barium	1500	375	18750	1000	250	-
Boron	1200	300	15000	-	-	-
Cadmium	1.3	0.3	17	75	50	50
Chromium	-	-	-	60	25	25
Chromium (III)	37.5	9.4	460	-	-	-
Chromium (VI)	0.02	0.005	0.2	-	-	-
Cobalt	10.5	2.6	130	-	-	-
Copper	622.5	156	7700	-	-	40
Lead	13.5	3.4	160	90	90	90
Manganese	1200	300	15000	-	-	-
Mercury	7.5	1.9	94	60	25	25
Nickel	75	18.8	930	-	-	-
Selenium	37.5	9.4	460	500	500	-
Strontium	4500	1125	56000	-	-	-
Tin	15000	3750	180000	-	-	-
Organic tin	0.9	0.2	12	-	-	-
Zinc	3750	938	46000	-	-	-

According to this, it will be proposed to set more restrictive limits for recycled wood fibres.

Current criterion 3 (c) and 3 (d) (i):

c) Impregnating substances and preservatives

(i) Indoor furniture shall not be impregnated.

For all other furniture, where impregnation or preservatives are used, they shall fulfil the requirements on hazardous substances (Section 2).

(ii) Solid wood, after logging, shall not be treated with substances or preparations containing substances that are included in any of the following lists:

- WHO recommended classification of pesticides by hazard classified as class 1a (extremely hazardous),
- WHO recommended classification of pesticides by hazard classified as class 1b (highly hazardous).

Moreover, the treatment of wood shall be in accordance with the provisions of Council Directive 79/117/EEC and Council Directive 76/769/EEC.

d) Use of hazardous substances and preparations in the production of wood-based materials

In addition to the requirements of Section 2 on hazardous substances, all substances and preparations used in the production of wood-based material shall fulfil the following:

(i) Virgin wood shall not be treated with substances or preparations containing substances that are included in any of the following lists:

- WHO recommended classification of pesticides by hazard classified as class 1a (extremely hazardous),
- WHO recommended classification of pesticides by hazard classified as class 1b (highly hazardous).

Moreover, the treatment of wood shall be in accordance with the provisions of Directive 79/117/EEC and Directive 76/769/EEC.

Proposal to include current criterion 3(c) and 3(d)(i) in revised Criterion 2 (d) for Hazardous substances
d) Biocides i. Indoor furniture shall not be impregnated.

For all other furniture, where impregnation or preservatives are used, they shall fulfil the requirements on hazardous substances and mixtures meeting criteria for classification with the hazard statements in accordance with CLP Regulation specified in point 2 (a) of this criterion.

ii. According to the Biocidal Products Regulation (BPR, Regulation (EU) 528/2012)35, only biocidal products containing biocidal active substances approved by the European Commission and authorised by product type 8, wood preservatives, shall be allowed for use in wood outdoor furniture.

iii. According to the Biocidal Products Regulation (BPR, Regulation (EU) 528/2012)36, only biocidal products containing biocidal active substances approved by European Commission and authorised by product type 18 (insecticides, acaricides and products to control other arthropods) shall be allowed for use in solid wood after logging or virgin wood.

iv. No biocides must be applied to the surface of the final product with the intention to add a disinfective effect.

v. Dimethylphumarate, pentachlorophenol and its salts and esters shall not be present in wood products.

vi. The mixture (3:1) of CMIT/MIT (5 chloro-2-methyl-4-isothiazolin-3-one/ 2-methyl-4-isothiazolin-3-one) in excess of 0.0015% by weight and isothiazolinones in excess of 0.05% by weight shall not be present in any used chemical product including surface treatment.

Rationale and discussion:

- Various agents of biocides can be used for the protection and preservation of materials in order to extend their useful lifespan. An organic material tends to decompose by the action of bacteria, insects and microorganisms, especially under outdoor environmental conditions with changes in temperature and humidity. This is especially the case for wood(-based) products.

  Some woods, such as redwood, cypress, and the cedars, are usually durable and naturally more resistant to rain, sun, rot and insect infestation as they naturally contain chemical compounds that repeal bugs, bacteria, and other agents of decomposition. Others woods such as white oak and black locust have physical barriers to rot resistance.

  The Biocidal Products Regulation (BPR, Regulation (EU) 528/2012)[37] concerns the placing on the market and use of biocidal products, which are used to protect humans, animals, materials or articles against harmful organisms like pests or bacteria, by the action of

[35] More information available online at: http://echa.europa.eu/regulations/biocidal-products-regulation
[36] More information available online at: http://echa.europa.eu/regulations/biocidal-products-regulation
[37] More information available online at: http://echa.europa.eu/regulations/biocidal-products-regulation

the active substances contained in the biocidal product. The new regulation on the use and placing on the market of biocidal products will repeal and replace the current directive on biocides (Directive 98/8/EC). It has entered into force on 1 January 2013 and will be applicable from 1 September 2013, with a transitional period for certain provisions. According to this, only biocidal products containing biocidal active substances approved by European Commission and authorised by this product type shall be allowed for use in wood. Biocidal products and active substances fall into 4 categories and 23 product-types. Product type 8 is wood preservatives. Wood preservatives are products used for the preservation of wood, from and including the sawmill stage, or wood products by the control of wood-destroying or wood-disfiguring organisms. This product type includes both preventive and curative products. Moreover, the pesticides are included in the product type 18 which includes insecticides, acaricides and products to control other arthropods. These types of products are used for the control of arthropods for instance insects, arachnids and crustaceans by means other than repulsion or attraction. The technical report[38] outcomes include the list of approved substances to be used for product type 8 and also for 18.

In a parallel way and according to CLP regulation (EC) 1272/2009 which entered into force on 20th January 2009, all biocides must be classified, labeled and packaged according to CLP. The date from which substances classification and labelling must be consistent with CLP was December 2010 and for mixtures will be June 2015.

On the basis that biocides according to the Biocidal Products Regulation (BPR, Regulation (EU) 528/2012)[39] must be classified, labeled and packaged according to CLP Regulation which entered into force on 20th January 2009 and is based on the United Nations' Globally Harmonised System (GHS), it will be proposed that biocides or any component of it shall not contain substances meeting criteria for classification with the hazard statements or risk phrases specified in accordance with CLP Regulation instead of WHO Recommended classification. Moreover, biocides shall fulfil the requirements on hazardous substances according to the Article 6(6) of Regulation (EC) No 66/2010 on the EU Ecolabel and only pesticides included in the product type 18 will be used for treated wood outdoor furniture.

- Only biocidal products containing biocidal active substances approved by the European Commission and authorised by product type 8 (wood preservatives) and 18 (insecticides, acaricides and products to control other arthropods), shall be allowed for use in wood furniture. Consequently, this product group does not cover products that are specifically marketed for disinfecting or anti-bacterial use. For this reason, no biocides must be applied to the surface of the final product with the intention to add a disinfective or antibacterial effect. Disinfectants covered by product type 2 (private area and public health area disinfectants and other biocidal products) shall not be allowed for use in furniture.

[38] For more information see details in "Background report", available online at the project's website: http://susproc.jrc.ec.europa.eu/furniture/whatsnew.html

[39] More information available online at: http://echa.europa.eu/regulations/biocidal-products-regulation

- Dimethylfumarate, pentachlorophenol and its salts and esters are included in the Annex XVII of REACH regulation[40] according to restricted substances.

    - Pentachlorophenol (PCP) was used for its properties as biocidal agent in wood products. According to its harmonized CLP classification: Carc. 2 Acute Tox. 2 * Acute Tox. 3 * Acute Tox. 3 * Eye Irrit. 2 STOT SE 3 Skin Irrit. 2 Aquatic Acute 1 and Aquatic Chronic 1, there is considerable concern about adverse ecosystem effects in areas of PCP contamination. PCP has been detected in surface waters and sediments, rainwater, drinking water, aquatic organisms, soil, and food, as well as in human milk, adipose tissue, and urine. Releases to the environment are decreasing as a result of declining consumption and changing use methods. However, PCP is still released to surface waters from the atmosphere by wet deposition, from soil by run off and leaching, and from manufacturing and processing facilities. PCP is released directly into the atmosphere via volatilization from treated wood products and during production. Finally, releases to the soil can be by leaching from treated wood products, atmospheric deposition in precipitation (such as rain and snow), spills at industrial facilities and at hazardous waste sites. After PCP is released into the atmosphere it decomposes through photolysis. The main biodegradative pathway for PCP is reductive dehalogenation. In this process, the compound PCP is broken down to tetrachlorophenols, trichlorophenols and dichlorophenols.

      PCP was banned in 1987 for this use.

    - Dimethylfumarate (DMFu) as a biocide is not allowed in the EU according to decision 2009/251/EC. DMFu being present either in the articles themselves or in sachets added to the articles seem to have caused many of the observed cases of DMFu-sensitisation. A number of cases of DMFu in articles have been reported via the EU rapid alert system for dangerous consumer products, the RAPEX system. Some of the identified health effects from the use of DMFu in sofas are serious burns, eye problems and breathing difficulties.

- Isothiazolinone compounds are found in wood coatings and in some paint and adhesives formulations. They cover a broad spectrum of fungicide, algicide and bacteriostatic agents used in solvent based coatings and surface protection products. Chloromethylisothiazolinone (CMIT) and methylisothiazolinone (MIT) have been associated with allergic reactions.

[40] List of restricted substances according Annex XVII of REACH regulation, more information available online at: http://www.echa.europa.eu/web/guest/addressing-chemicals-of-concern/restrictions/list-of-restrictions/list-of-restrictions-table

Current criterion 3 (d)(ii):

d) Use of hazardous substances and preparations in the production of wood-based materials

In addition to the requirements of Section 2 on hazardous substances, all substances and preparations used in the production of wood-based material shall fulfil the following:

(ii) The content of free formaldehyde in products or preparations used in the panels shall not exceed 0,3 % (w/w). The content of free formaldehyde in binding agents, adhesives, and glues for plywood panels or laminated wood panels shall not exceed 0,5 % (w/w).

Proposal for criterion 3 (c) for Material Requirements

(c) ***Use of hazardous substances and preparations in the production of wood-based materials***

In addition to the requirements of Section 2 on hazardous substances, all substances and preparations used in the production of wood-based material shall fulfil the following:

(ii) The content of free formaldehyde in products or preparations used in the panels shall not exceed 0,2 % (w/w). The content of free formaldehyde in binding agents, adhesives, and glues for plywood panels or laminated wood panels shall not exceed 0,2 % (w/w).

Rationale and discussion:

The main categories of wood-based products such as panels are fibreboard, particleboard and plywood mainly produced with heat and pressure and the addition of an adhesive to glue fibres, particles or sheets of wood. The main environmental impact is, besides the energy used, linked to the use of hazardous substances such as formaldehyde resins, melamine, polyurethane resins, etc.

Adhesives are used for wooden panels as well as in the assembly of furniture. Different types of adhesives are on the market and can be natural or synthetic (petroleum based adhesives). Some of the synthetic adhesives and resins mainly used are:

- ✓ Phenol-formaldehyde resins (PF) are used as a furniture adhesive.
- ✓ Urea-formaldehyde resins (UF) used in plywood, particleboard and medium-density fibreboard.
- ✓ Melamine resins

Urea-formaldehyde resins (UF) show potential problems associated with formaldehyde emissions. Formaldehyde is a known sensitizer and a known carcinogen based on its classification[41]: H351: suspected of causing cancer, H301: toxic if swallowed, H311: toxic in contact with skin, H331: toxic if inhaled; H314: causes severe skin burns and eye damage and H317: may cause an allergic skin reaction.

Formaldehyde is one of the most concerning volatile organic compounds (VOCs). Formaldehyde emissions are greater immediately after wood panel manufacture. Workplaces or storage areas with low air exchange are especially dangerous because of the high concentration of formaldehyde.

Formaldehyde emissions during production and end-use are a relevant consequence with negative environmental impacts on ecosystem quality[42]. Therefore, special attention is focused on the reduction of this type of adhesives as well as on their replacement by more environmentally-friendly, natural and safer alternatives. Thus, the reduction of formaldehyde emissions can lead to significant benefits.

The development of other environmental schemes such as Nordic Swan for furniture and fitments has led to the implementation of a stricter criterion regarding the content of free formaldehyde. This indicates that the current level of 0,3% (w/w) for products or preparations used in panels and 0,5% for binding agents, adhesives and glues for plywood or laminated wood panels is not stringent enough and should be revised downwards. It is thus proposed to align with the Nordic Swan and put the limit on 0.2% w/w.

Current criterion 3 (e):

e) ***Formaldehyde emission from untreated raw wood-based materials***

Wood-based materials are only allowed in a piece of furniture if they comply with the following requirements:

i. Particleboard: the emission of formaldehyde from particle boards in their raw state, i.e. prior to machining or coating, shall not exceed 50 % of the threshold value that would allow it to be classified as E1 according to standard EN 312.

ii. Fibreboard: the emission of formaldehyde form fibreboard(s) in their raw state, i.e. prior to machining or coating shall not exceed 50% of the threshold value that would allow it to be classified as E1 quality according to EN 622-1. However, fibreboard(s) classified as E1 will be accepted if they do not represent more than 50% of the total wood and wood-based materials used in the product.

[41] For details see the information contained at ECHA website: http://apps.echa.europa.eu/registered/data/dossiers/DISS-9d8ad2a1-0d51-13f7-e044-00144f67d249/AGGR-aa1957ab-42e8-43c6-856d-09b14245e171_DISS-9d8ad2a1-0d51-13f7-e044-00144f67d249.html#L-9cf4f64b-5725-4012-aad3-657063a4f5b6.

[42] Imam, S.H., Mao, L., Chen, L., Greene, R.V., 1999. Wood adhesive from crosslinked poly (vinyl alcohol) and partially gelatinized starch: preparation and properties. Starch-Stärke 51 (6), 225e229.

Proposal criterion number 3 (d) and (e) for Material Requirements
(d) Formaldehyde emission from untreated raw wood-based materials Wood-based materials are only allowed in a piece of furniture if they comply with the following requirements: i. The emission of formaldehyde from particle and fibreboards in their raw state, i.e. prior to machining or coating, shall not exceed 50% of the threshold valued that would allow it to be classified as E1 according to the European standards indicated in table 2 below. **(e) Formaldehyde emission for Surface Treatments** A more restrictive limit for formaldehyde emissions from substances and preparations for surface treatment liberating formaldehyde (< 0.05 ppm) could be proposed.

Rationale and discussion:

Particleboard and fibreboard are wooden panels produced under heat and pressure with the addition of an adhesive to glue particle and fibers respectively. Types of fibreboards in order of increasing density are:

- **Particle board** usually refers to low density fibreboard (LDFB)
- **Medium density fibreboards** (MDF) is heavily used in furniture industry
- **Hardboard** is also called high density fibreboard (HDFB)

Particleboards and fibreboards manufactured in Europe must meet the appropriate European standards:

- EN 312:2003 Particleboards – Specifications
- EN 622 for fibreboards

According to these standards, two European formaldehyde classes, E1 and E2 are defined, depending on levels of formaldehyde emission measured. The release of formaldehyde from E1 boards is less than 0.1 ppm (parts per million) and for E2 boards it is between 0.1 ppm and 0.3 ppm.

At European level, the most common formaldehyde testing methods are:

- Reference method: Chamber method EN717-1 with three volume options
- Derived methods:

- Perforator method EN120
- Gas analysis method EN717-2

The limit values for the formaldehyde class E1 are given in the next table:

Table 4. Limit values for formaldehyde class E1 in panel products

		Panel product		
		Unfaced	Unfaced	Coated, overlaid or veneered
		Particleboard OSB MDF	Plywood Solid wood panels LVL	Particleboard OSB MDF Plywood Solid wood panels Fibre boards (wet process) Cement bonded particleboards LVL
Initial type testing*	Test method	EN 717-1		
	Requirement	Release ≤ 0.124 mg/m³ air		
Factory production control	Test method	**EN 120**	**EN 717-2**	
	Requirement	Content **≤ 8 mg/100** g oven dry board	Release **≤ 3.5 mg/m² h or**	
			≤ 5 mg/m² h within 3 days after production	
* For established products, initial type testing may also be done on the basis of existing data with EN120 or EN717-2 testing, either from factory production control or from external inspection.				

Source: European Regulations for formaldehyde, Fraunhofer Institute.

The average content of free formaldehyde according to proposal criterion 3 (d) should be determined by the applicable European standards indicated in this table.

Current criterion 3 (f):

f) Genetically modified wood

The product shall not contain GMO wood.

Proposal for criterion 3 (e) for Material Requirements

(e) Genetically modified wood

NO CHANGES PROPOSED.

Rationale and discussion:

No changes are proposed, criterion should be maintained although the current availability of GMO wood is very low. A study from the Food and Agriculture Organization of the

United Nations (FAO)[43] suggested that as of 2002, less than 500 ha of genetically modified forest trees (poplar clones) were being grown commercially in China. *Populus* is the genus of forest tree in which genetic modification has been researched most widely, although some genetic modification research has been reported for about 19 genera of forest trees.

This same criterion can be found in other type I Ecolabels (Nordic Ecolabel) and FSC certification.

CRITERION 4: SURFACE TREATMENTS

The criterion in the current EU Ecolabel for surface treatments is structured in different parts a), b), c), d) and e) and will be revised as such.

Surface treatment refers to the surface treatment process either of single parts/components of furniture or of the furniture as a whole.

Current criteria for Surface Treatments (a)

a) Surface treatment with plastic and metals

Plastics and metal shall be allowed in a percentage up to 2 % of the total weight of the piece of furniture. They must comply with the general requirements on hazardous substances stated in Section 2.

Proposal for criterion 4 (a) for the Criteria for surface treatments
- This criterion has been integrated in section 2 regarding hazardous substances. - The percentage of plastic and metal furniture will be removed due to the possible extension of this product group according to the proposal scope.

Rationale and discussion:

If the scope is extended to include different materials, this criterion will obviously disappear as an allowance for a percentage up to 2% would be irrelevant. In the revised criteria, these materials should also fulfil the criterion on hazardous substances.

Current criteria for Surface Treatments (b)

b) Other surface treatments than plastics and metals

This criterion is linked to the coating of the furniture and wood materials.

(i) Hazardous substances and preparations (including VOC content)

[43] FAO. 2004. *The State of Fod and Agriculture 2003-04*. Rome.

All materials, substances and preparations used must comply with the requirements on hazardous substances set out in section 2.

In addition, chemical substances classified as harmful for the environment by the chemical manufacturer/supplier in accordance with Community classification system (28th Amendment to Directive 67/548/EEC) shall comply with one of the 2 following limits:

- Chemical substances classified as harmful for the environment in accordance with Directive 1999/45/EC must not be added to substances and preparations for surface treatment. Nevertheless the products may contain up to 5 % volatile organic compounds (VOC) as defined in Council Directive 1999/13/EC. If the product requires dilution, the contents of the diluted product must not exceed the aforementioned threshold values.
- The applied quantity (wet paint/varnish) of environmentally harmful substances in accordance with Directive 1999/45/EC shall not exceed 14 g/m2 surface area and applied quantity (wet paint/varnish) of VOC shall not exceed 35 g/m2.

Proposal for criterion 4 (b) for Surface Treatments

i. All materials, substances and preparations used must comply with the requirements on hazardous substances set out in proposal criterion 2.

ii. Chemical substances classified as harmful by the manufacturer/supplier in accordance with CLP regulation shall comply with one of the two following limits:

- Chemical substances classified as harmful in accordance with CLP regulation or Directive 1999/45/EC must not be added to substances and mixtures for surface treatment. Nevertheless, the products may contain up to 5 % volatile organic compounds (VOC) as defined in Council Directive 1999/13/EC. If the product requires dilution, the contents of the diluted product must not exceed the aforementioned threshold values.
- The applied quantity (wet paint/varnish) of environmentally harmful substances in accordance with CLP Regulation shall not exceed 10 g/m² surface area and applied quantity (wet paint/varnish) of VOC shall not exceed 30 g/m².

iii. **Assembly of furniture**: Current criterion 5 (b) has been integrated here with a horizontal approach. The VOC content of adhesives used in the assembly of furniture shall not exceed 3% (w/w).

Rationale and discussion:

VOC´s are organic chemicals that easily pass to the gas state. They include a wide variety of compounds, including aldehydes, ketones and other light hydrocarbons. Among others, the VOCs are released by paints, adhesives and solvents used in the manufacture of furniture. VOCs are considered as an important factor in the indoor air quality. Some of them, such as methane, are also greenhouse gases, and others may react to form ozone in the troposphere, which can cause breathing problems. In addition, many VOCs are hazardous for human health. The main concern on paints and varnishes is the use of organic solvents, which can evaporate emitting Volatile Organic Compounds. Solvent-born paints can have various combinations of organic solvents including aliphatics, aromatics, alcohols, ketones and white spirit. Specific examples are organic solvents such as petroleum distillates, esters and glycol ethers. These compounds (e.g toluene, phenol, formaldehyde, xylene, ethylbenzene, methyl methacrylate, butyl methacrylate, heptane, ethyl acetate, etc.) are mainly volatile and flammable and mostly often classified according to their effect on human health as harmful if inhaled, irritant to eyes, skin and by inhalation. One of the more efficient measures to reduce the environmental impact should be restriction of the organic solvent content and reduce the VOC emissions in products, adhesives and surface treatments substances. Thus, the reduction of VOC emissions can lead to significant benefits.

The development of other environmental schemes such as Nordic Swan for furniture and fitments has led to the implementation of a stricter criterion regarding the applied quantity (wet paint/varnish) of environmentally harmful substances and the content of VOC emissions. This indicates that the current levels are not stringent enough and should be revised downwards. It is thus proposed to align with the Nordic Swan.

Current criteria for Surface Treatments (c)

c) Formaldehyde

Formaldehyde emissions from substances and preparations for surface treatment liberating formaldehyde shall be less than 0,05 ppm.

Proposal criterion 4 (c) for Surface Treatments
i. Current criterion 4 (c) has been integrated in proposal criterion 3 (e) regarding material requirements.

Current criteria for Surface Treatments (d)

d) Plasticizers

If any plasticizer substance in the manufacturing process is applied, phthalates must comply with the requirements on hazardous substances set out in section 2.

Additionally DNOP (di-n-octyl phthalate), DINP (di-isononyl phthalate), DIDP (di-isodecyl phthalate) are not permitted in the product.

Proposal for criterion 4 (d) for Surface Treatments
Plasticizers: This criterion has been integrated in section 2 regarding hazardous substances.

Current criteria for Surface Treatments (e)

e) Biocides

Only biocidal products containing biocidal active substances included in Annex IA to Directive 98/8/EC of the European Parliament and of the Council and authorised for use in furniture, shall be allowed for use.

Proposal for criterion 4 (e) for the Criteria for surface treatments
Biocides: This criterion has been integrated in section 2 regarding hazardous substances.

CRITERION 5: ASSEMBLY OF FURNITURE

The criterion in the current EU Ecolabel for the assembly of furniture is structured in different parts a) and b) and is revised as such.

Current criteria 5 (a):

This criterion is linked to the glueing of components included in the assembly of furniture. i.e. adhesives.

a) Hazardous substances in additives and binding agents

They must comply with the requirements set out in section 2 on hazardous substances.

Proposal for criterion 5 for the Assembly of Furniture
This criterion has been integrated in section 2 regarding hazardous substances.

Current criteria 5 (b):

b) VOC

The VOC content of adhesives used in the assembly of furniture shall not exceed 5 % (w/w).

Proposal number 5 for the Criteria for the Assembly of Furniture
i. This criterion has been integrated in proposal criterion 4 (b) (iii) regarding assembly of furniture.

CRITERION 6: FINAL PRODUCT

The criterion in the current EU Ecolabel for the final product is structured in different parts a), b), c), d), e), f) and g) and is revised as such.

Current criteria 6 (a):

a) Durability and safety

The product shall fulfil the requirements on durability, strength, safety and stability in EN standards applicable to the usage of the product. If no EN standard exists, the requirements in ISO standards shall be used. If no EN or ISO standard exists, an evaluation of the product´s durability, strength, safety and stability on the basis of the design and choice of materials shall be performed by an independent test institution.

The user manual will provide the list of norms and standards which shall be used for the durability assessment.

Given the importance of the durability criterion and in order to improve the durability assessment of a product, an initiative will be taken by the EUEB to promote the adoption of EN durability standards which will have to be available for the next revision of the present criteria.

Proposal for criterion 6 (a) for the Final Product
a) Durability and safety All products shall fulfil the requirements on durability, strength, safety and stability

in EN standards applicable to the usage of the product. If no EN standard exists, the requirements in ISO standards shall be used. If no EN or ISO standard exists, an evaluation of the product´s durability, strength, safety and stability on the basis of the design and choice of materials shall be performed by an independent test institution.

b) Ergonomics and fitness for use

Furniture products shall fulfil the requirements on ergonomics and fitness for use according to the relevant EN and ISO standards.

Rationale and discussion:

- Furniture is a product with a relatively long life span. Lifespan and durability is a key factor to minimize environmental impact from furniture. LCA studies show that reusing/refurbishing/remanufacturing furniture products like chairs and desks leads to both energy and economic savings. Design for durability, reparability, maintenance, fitness for use and remanufacturing shall be guaranteed for ecolabelled products in order to avoid early replacement of furniture.
- Ergonomic and fitness for use is an important parameter, especially for furniture like chairs and tables for office or scholar applications. Requirements for ergonomic performance and fitness for use criteria are set in relevant ISO and EN Standards. 37% of stakeholders consulted approved this proposal, whereas other 37% did not answer the question. Current GPP criteria include ergonomics issues.

Current criteria 6 (b):

b) Maintenance

Maintenance of products shall be possible without organic based solvents.

The manufacturer shall guarantee the possibility of acquiring spare part (original functional items or items fulfilling equivalent functions) upon request throughout the actual period of their industrial manufacturing and for a period of 5 years as of the date when production of the relevant range is stopped.

Proposal for criterion 6 (b) for the Final Product

b) Maintenance

Maintenance of products shall be possible without organic based solvents.

The manufacturer shall guarantee the possibility of acquiring spare part (original functional items or items fulfilling equivalent functions) upon request throughout the actual period of their industrial manufacturing and for a period of 5 years as of

the date when production of the relevant range is stopped.

The product shall be easy to assemble and disassemble. Assembly should be done by reversible methods (e.g. screws) in order to allow disassembly and remanufacturing.

Rationale and discussion:

- 42% of stakeholders that answered the questionnaire agreed to set criteria on ecodesign such as "Design for disassembling". This means facilitating disassembly/assembly and easy replacement of components without special training
- LCA studies including the use stage show that this stage has negligible environmental impacts. Maintenance of furniture products is quite simple and usually is limited to cleaning operation, although it depends on the type of furniture, material and application (indoor/outdoor).

Current criteria 6 (c):

c) Recycling and waste

The product must be easily recyclable. A detailed description of the best ways to dispose the product (reuse, recycling, take back initiative by the applicant, energy production) shall be given to the consumer, ranking them according to their impact on the environment. For each option the precautions to be taken to limit the impact on the environment will have to be clearly stated.

Proposal for criterion 6 (c) for the Final Product

c) Recycling and waste

The product must be easily recyclable. A detailed description of the best ways to dispose of the product (reuse, recycling, take back initiative by the applicant, energy production) shall be given to the consumer, ranking them according to their impact on the environment. For each option the precautions to be taken to limit the impact on the environment will have to be clearly stated.

In order to facilitate recycling of materials used in furniture, all components should be easily separable.

Plastic parts with a weight above or equal to 50 g shall be marked in accordance with the requirements of Standard EN ISO 11469 so that materials can be identified to ensure they are able to be recycled, recovered or disposed of in the correct manner during the end-of-life.

Rationale and discussion:

According to statistics released by the European Federation of Furniture Manufacturers (UEA), furniture waste in the EU accounts annually for more than 4% of the total municipal solid waste (MSW). 80-90% of is incinerated or dumped in landfills, whereas the remaining part is recycled[44]. Some furniture at the end-of-life is reused or refurbished, since the technical lifespan of furniture is usually longer than the real life time. LCA studies show that on average, the end-of-life stage can account to 15% on average of contribution to the different key environmental impact indicators (global warming, ozone depletion potential, acidification potential, photochemical oxidant formation potential, eutrophication). In all studies with sensitivity analysis among different waste treatment scenarios, furniture recycling showed lower impacts than other treatments such as incineration or disposal in landfill. For those components non-recyclable (such as wooden boards) energy valorisation has a lower impact than disposal in landfill. Recyclability of furniture will depend on the recyclability of its components and materials and the possibility of separating the different components. At the end-of-life, reuse and remanufacturing should be promoted as preferable options.

Marking plastic parts would facilitate recycling. However, marking very small parts (such as little components, screws,…) would be not feasible. The norm ISO 11469 does not specify the minimum weight to mark parts. The threshold of 50g is an alignment with the Nordic Ecolabel.

Current criteria 6 (d):

d) Consumer information

The following information shall be supplied with the Ecolabelled product:

- Information on the fitness for purpose, on the basis of domestic or contract use (light or heavy, indoor or outdoor);
- Information on cleaning and care;
- Instruction for the replacement of glass (if any) upon request in case of damage or breakage from manufacturer or retailer;
- Instruction that the local authorities should be contacted on the best way to dispose of old furniture and materials;
- Instruction for assembly;
- Best use from an ergonomic point of view, where relevant;
- Name of the species of solid wood;
- Indicate any treatments or preservatives that have been used on outdoor products (chemical, biological or physical);

[44] Consultancy and Research for Environmental Management (CREM). Eco-label Furniture. Extension of the Scope. Final report. August 2004. Report number 04.728

— Recommendation that the consumer use EU Ecolabelled products for future preservation of the furniture.

Proposal for criterion 6 (d) for the Final Product
d) Consumer information *(changes from the current criterion are marked in italic font)* The following information shall be supplied with the Ecolabelled product: — Information on the fitness for purpose, on the basis of domestic or contract use (light or heavy, indoor or outdoor); — Information on cleaning and care; — Instruction for the replacement of all replaceable parts (glass, textiles, etc., if any) upon request in case of damage or breakage from manufacturer or retailer; — Instruction that the local authorities should be contacted on the best way to dispose of old furniture and materials; — Instruction for assembly and disassembly; — Best use from an ergonomic point of view, where relevant; — Name of the species of solid wood; — Indicate any treatments or preservatives that have been used on outdoor products (chemical, biological or physical); — Recommendation that the consumer use EU Ecolabelled products for future preservation of the furniture.

Rationale and discussion:

An instruction for the replacement of *all replaceable parts* and not only glass is a consequence of the possible scope widening. Also the instructions needed for disassembly can be related to that.

Current criteria 6 (e):

e) Packaging of the final product

Packaging must fulfil the following requirements:

(i) Made out of one of the following:

— easily recyclable material;

— materials taken from renewable resources;

— materials intended to be reusable, such as textile coverings.

(ii) All materials shall be easily separable by hand in recyclable parts consisting of one material (e.g. cardboard, paper, plastic, textiles).

Proposal for criterion number 6 (e) for the Final Product
e) Packaging of the final product NO CHANGES PROPOSED.

Rationale and discussion:

In some cases, especially with small furniture, the weight of the packaging can represent an important percentage of the total weight of the packed furniture (7% - 13% on average). Regarding materials, the main component of packaging is usually corrugated cardboard, but packaging can also contain plastic (e.g. PP, PS), paper, or metal pieces (e.g. steel). The use of single-use packaging in the furniture industry is much extended. In general, these packages have a very short lifespan, being discarded immediately after distribution. The main environmental problems related to packaging come from the consumption of raw materials and packaging waste. This environmental problem could be reduced by:

- the use of packaging made from recycled materials,
- recyclable packaging
- reusable packaging.

Current criteria 6 (f):

f) ***Information on the packaging***

The following text shall appear on the packaging:

'For more information as to why this product has been awarded the Flower, please visit the website: http://www. ecolabel.eu'

The following text (or equivalent text) shall also appear on the packaging and in the user manual:

'For more information visit the European Eco-label website. Additional information can be obtained at: name/address of the consumer department of the applicant'.

Proposal for criterion 6(f) for the Final Product
f) Information on the packaging NO CHANGES PROPOSED.

Current criteria 6 (g):

g) Information appearing on the eco-label

Box 2 of the Eco-label shall contain the following text:

— Wood from well managed forests;

— restricted hazardous substances;

— product tested for durability.

Proposal for criterion 6(g) for the Final Product
g) Information appearing on the eco-label Some proposals are: - Products tested for durability, safety and ergonomics (if ergonomics are included in criterion (a)) - Minimum energy impact (if energy consumption requirements are set as additional criterion (see new/additional proposed criteria below) - Wood from sustainable managed forests - Restricted hazardous substances - Promoting renewable, recycled and recyclable materials. - % of recycled material used.

Rationale and discussion:

Information appearing on the eco-label should incorporate key information about new criteria proposed.

3 NEW/ADDITIONAL PROPOSED CRITERIA

If the scope will be expanded, it will be important to set criteria for the different materials such as metal, plastic, textiles, glass and padding materials.

Criteria for different materials could be included in the proposal for criterion 3 for material requirements. Moreover, criteria should also be defined to reduce the environmental impact in relation to the use of hazardous substances. Such criteria for different materials could be included in the proposal for criterion 2 for hazardous substances.

PLASTIC MATERIALS

Proposal for addition in criterion number 3 for Material Requirements
✓ **PLASTIC MATERIALS** *Requirements where the final product contains more than 10% by weight plastic:* *i. Plastic materials must consist of at least 50% by weight recycled materials.*

Rationale and discussion:

- Main plastics used in furniture are: Polystyrene (PS), polyvinyl chloride (PVC), polyethylene (PE) and polypropylene (PP). Other plastics like polycarbonate, polyethylene terephthalate (PET), poly(methyl methacrylate) (PMMA), polyamide6 (PA6)/Nylon or acrylonitrile butadiene styrene (ABS) are used as well.
- Impacts related to plastic are relatively high energy consumption, the use of non-renewable resources and the inclusion of some additives such as stabilisers, plasticisers and flame retardants with hazardous properties. These hazardous substances should comply the requirements set in criterion 2.
- The use of recycled plastics is currently feasible in the furniture sector, although some limitations can exist for some components such as colour limitations, resistance requirements or other technical properties (especially in outdoor furniture).
- LCA studies show that wood is the material less environmentally impacting when compared to metals and plastics. In order to avoid the increase of the potential environmental impacts of ecolabelled furniture, requirements of recycled content on plastic and metals should be set in those furniture where plastics and metal components represent more than 10% and 50% by weight, resepectively. This threshold, together with the minimum percentage of recycled content (50%) is aligned with the Nordic Ecolabel.

METAL MATERIALS

Proposal for addition in criterion number 3 for Material Requirements
✓ **METAL MATERIALS** *Requirements where the final product contains more than 50% by weight metal* *ii. 50% of aluminum and steel must be recycled metal.* *iii. Other metals: 20% must be recycled metal.*

Rationale and discussion:

- The most relevant types of metals for the production of furniture are aluminium, steel (mainly stainless steel) and iron (especially in outdoor furniture).
- The most significant impacts related to metal production are related to mining activities (landscape, metal contamination), materials and energy consumption and the use of non-renewable resources, as well as the use of hazardous substances as sodium dichromate (substance included in the candidate list) in the case of steel.
- The use of secondary (recycled) metals appears as one of the most efficient measures to reduce the environmental impacts associated to metals, mainly due to reduction of energy consumption. Nowadays the majority of metals used in the furniture sector (steel, aluminum…) can originate from recycling. In the case of aluminum, which is the most energy demanding metal, the use of secondary aluminum allows considerable reduction of energy consumption of 89-95%. In the case of steel, recycled steel brings energy savings and avoids the consumption of hazardous substances used in primary steel production such as sodium dichromate. These hazardous substances should comply with the requirements established by the criterion 2. Simultaneously, the minimum content of recycled metal should be set.
- The availability of recycled aluminium and steel in Europe is high. In 2007, the production of secondary steel represented the 56% of the total European steel production[45]. The aluminium supply in Europe in 2011 was 13.2 million tones, 35% out of which was produced by European primary smelters, 30% was net-imported and 34% was recycled by European refiners and remelters46. More than half of all the aluminium currently produced in the European Union (EU-27) originates from recycled raw materials and that trend is increasing. In relation with the availability of recycled metal in the market for each type of metal, minimum percentages are fixed. Recycled aluminium and steel is widely available in Europe and for this reason the percentage proposed (50%) is higher than for the rest of metals (20%).

[45] http://ec.europa.eu/enterprise/sectors/metals-minerals/steel/index_en.htm
[46] European Aluminium Association. http://www.alueurope.eu/aluminium-sector-in-europe-2010/

UPHOLSTERY FABRICS

Proposal for addition in criterion number 3 for Material Requirements
✓ **TEXTILES** *Textiles shall comply with the requirements set for the specific fibre types according to the EU Ecolabel on textiles[47] currently under final revision.* ✓ **LEATHER** *Due to a limited market share, it will be proposed that leather shall not be included in upholstery fabrics.*

Rationale and discussion:

- Textiles are used in upholstered furniture such as seats, backs of chairs, sofas and arm rests. Textiles can be produced from various materials, both from natural fibres such as cotton, wool, jute or flax and synthetic fibres such as polyester and polyamide. Virtually all types of textiles are applied in the furniture industry.
- The impacts of the different fabrics are mainly due to the production phase, especially in the treatment of the fibres[48]. It will be proposed that textiles should comply with the requirements set for the specific fibre types according to the EU Ecolabel on textiles[49.] The fibre types included in the last revision of the EU Ecolabel for textiles products were:
  - Natural fibres: Cotton and other natural cellulosic seed fibres, flax and other bast fibres, greasy wool and other keratin fibres, silk;
  - Synthetic fibres: Acrylic, elastane, polyamide, polyester and polypropylene;
  - Man-made cellulose fibres: Cupro, lyocell, modal and viscose.
- Environmental impacts from leather can be related to the different life stages of the material:[50]Agriculture, cattle breeding and slaughtering; processing of leather (tanning process), plastics and other synthetic materials, manufacturing of finished products (usually less relevant). Main hot spots identified in different studies are: slaughtering, tanning chemicals (where usually chromium salts and other heavy metals are used) and consequent tannery solid wastes and wastewater.

[47] 2009/567/EC: Commission Decision of 9 July 2009 establishing the ecological criteria for the award of the Community Ecolabel for textile products, available online at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0567:EN:NOT

[48] ICLEI - Local Governments for Sustainability and Ecoinstitut Barcelona, European Commission Green Public Procurement (GPP) Training Toolkit. Furniture. 2008

[49] 2009/567/EC: Commission Decision of 9 July 2009 establishing the ecological criteria for the award of the Community Ecolabel for textile products, available online at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009D0567:EN:NOT

[50] Preliminary proposal with recommendations on the revision scope for the product group "footwear". Revision on the EU Ecolabel for the product group " Footwear".

According to statistics of the International Council of tanners[51], in 2007 the furniture sector used 3210 million square feet of leather in the world (14% of total leather production), showing a limited market share. Additionally, the proposed scope extension of the EU Ecolabel revision of furniture is so wide that is more appropriate to refer to it in a future revision of furniture and/or development of a new product group that covers "leather based products" according to the current revision of EU Ecolabel of footwear.

PADDING MATERIALS

Proposal for addition in criterion number 3 for Material Requirements
✓ **PADDING MATERIALS** Padding materials shall comply with the EU Ecolabel criteria for bed mattresses[52] and comply with the requirements set for the latex and polyurethane foams.

Rationale and discussion:

- Padding materials are mainly polyurethane foams (PUR-foams) and latex foams used in upholstered furniture as filling materials. The impacts of padding materials are mainly due to the presence of hazardous substances used in the production of PUR foams.
- It will be proposed that padding materials shall comply with the EU Ecolabel criteria for bed mattresses[53] and comply with the requirements set for the latex and polyurethane foams.

GLASS

Proposal for addition in criterion number 3 for Material Requirements
✓ **GLASS** - Glass shall be readily replaceable - Discuss if glass shall be recyclable - Discuss if a minimum of % of recycled glass can be proposed.

[51] http://www.tannerscouncilict.org/ict%20stats2008.pdf

[52] Commission decision of 3 September 2002 establishing revised ecological criteria for the award of the Community eco-label to bed mattresses, available online at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:236:0010:0015:EN:PDF

[53] Commission decision of 3 September 2002 establishing revised ecological criteria for the award of the Community eco-label to bed mattresses, available online at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:236:0010:0015:EN:PDF

Requirements where the final product contains more than 10% by weight glass

- *No lead glazing, crystal glass, mirror glass, shall be used.*
- *Discuss if Wire-reinforced and laminated glass can be used if it is required by law in order to meet specific safety requirements.*

Rationale and discussion:

- Glass is often present in furniture like storage units and cabinets (either as shelves or in glass doors) and tables.
- Glass used in furniture shall comply with the requirement specified by the General Product Safety Directive (2001/95/EC), which requires that all products are safe – given their intended end-use and also considering foreseeable use. 'Ordinary', or 'annealed' glass, will break into dagger-like shards, and so is often not suitable for use in furniture. Glass used in furniture is normally treated to be more resistant to breakage and to break in a more predictable way when it does break, such as Toughened glass (treated with a thermal tempering process), laminated glass (made of layers of glass and polymeric material) or wire-reinforced glass.
- Other types of glasses used in furniture can be:
  - Mirror glass, where a metal coating is applied to one side of the glass. The coating is generally made of silver, aluminium, gold or chrome.
  - Other treated gasses for appearance purposes: Crystal glass (containing lead oxide, potassium oxide and zinc oxide, that give to glass a high refractive index being more brilliant), lead glazing (glass parts separated by lead glazing bars), patterned glass, etc.
- Although glass is not as problematic as other non-renewable materials, because raw materials are abundant in nature, the extraction of these raw materials causes consumption of natural resources, use and destruction of land, etc. For this reason, it is important to assess the use of glass. One of the more efficient measures to reduce the environmental impact is the use of recycled glass and by the other hand, all glass should be completely recyclable and replaceable.
- Another problematic issue is the presence of hazardous substances such as heavy metals like cupper or lead (especially in mirrors or treated glasses) and substances in the candidate of list of substances of very high concern such as diarsenic pentaoxide and diarsenic trioxide.
- Regarding recyclability, processed glass like laminated glass (with a polymer layer) or mirrored glass (with a metal layer) can be difficult to recycle.

ADDITIONAL PACKAGING REQUIREMENTS

Proposal for addition in criterion number 2 for Hazardous Substances
Packaging requirements in function of the material used: ○ **Plastic:** shall comply with requirements set out in criterion 2 sections a), b) and c). ○ **Paper/cardboard packaging:** Chlorine gas shall not be used as a bleaching agent.

Rationale and discussion:

- **Paper/cardboard packaging**: Pulp shall not be bleached with chlorine gas. Chlorine gas is classified as H400 (very toxic to aquatic life), H315 (causes skin irritation), H319 (causes serious eye irritation), H331 (toxic if inhaled) and H335 (may cause respiratory irritation). Chlorine bleaching process is known to generate highly toxic and persistent organochlorines such as dioxins (PCDDs) and furans (PCDFs), recognized as Persisten Organic Pollutants (POPs), and regulated by the Stockholm Convention[54]. The requirement is aligned with the EU Ecolabel criteria for tissue paper[55] and for copying and graphic paper[56].

- **Plastic packaging:** shall comply with requirements set out on hazardous substances.

NANOMATERIALS

Proposal for additional criterion number 8: Nanomaterials
Based on the precautionary principle, the product should not contain manufactured nanomaterials intentionally added in order to provide a new functionality.

Rationale and discussion:

Several of the consumer end-products available today use nanomaterials. Examples of applications with furniture products containing nanomaterials are:

[54] Listing of POPs in the Stockholm Convention – Annexes, available online at: http://chm.pops.int/Convention/ThePOPs/ListingofPOPs/tabid/2509/Default.aspx.

[55] Commission Decision 2009/568/EC of 9 July 2009 establishing the ecological criteria for the award of the Community Eco-label for tissue paper, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:197:0087:0095:EN:PDF.

[56] Commission Decision 2011/332/EU of 7 June 2011 on establishing the ecological criteria for the award of the EU Ecolabel for copying and graphic paper, available online at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:149:0012:0024:EN:PDF.

- Easy to clean surfaces (SiO_2)
- Water repellent
- Self-cleaning surfaces (TiO_2 and ZnO)
- Stronger, more durable materials
- Lighter materials (Carbon nanotubes)
- Anti-bacterial products (TiO_2, ZnO, Ag and CuO)
- Anti-graffiti (SiO_2)
- Scratch resistance (SiO_2)
- UV/light stability (Ce_2O)

However, there are still uncertainties regarding health and safety issues. In a nutshell the concerns related to nanomaterials are linked to the so called "nanomaterials paradox", i.e. desired effects versus unexpected hazardous impact on health. Consequently, despite the many potentials for furniture innovation, major barriers are encountered with respect to uncertain health and safety issues. The very same properties that are desirable and potentially useful from a technological perspective are also the properties that may give rise to unexpected and undesired effects. The current methods used in REACH to assess the toxicological and ecotoxicological risk may not be adequate to evaluate the risks related to nanomaterials. Consequently, it can be seen that at present, there is inadequate information on risks associated to nanomaterials and in order to better assess their safety new test methodologies taking into account specific characteristic of nanomaterials are needed. Also the lack of scientific evidence regarding their use and related impacts is an important factor to consider.

Currently in the Nordic Ecolabel for furniture and fitments nano metals, nano minerals, nano carbon compounds and/or nano fluoride compounds must not be actively added to chemical products. In the NF Environment label, the French Ecolabelling Board decided that the product shall not contain paints manufactured with intentionally added nanomaterials in order to provide a new functionality.

Based on this, and until a proper framework to assess toxicological and ecotoxicological properties of nanomaterials is in place, the precautionary principle should be applied.

ENERGY CONSUMPTION

Proposal for criterion 7: Introduction of new requirements concerning energy consumption on materials use (lighting)

i) Limitation of energy embodied in materials used.

Energy embodied in materials present in the final product should not exceed the limits defined for each furniture group *(to be defined).*

Energy embodied in the product will be calculated with the following formula:

$$E = \Sigma W_i \times F_i$$

Where:

i: each material

Wi: wight of each material

Fi: energy factor for each material (to be defined*)*

ii) Lighting sources in furniture

In the case where electrical lighting is available in the product, fittings must be equipped with light sources classified with energy class A, according to REGULATION (EU) No 874/2012 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of electrical lamps and luminaries.

Rationale and discussion:

In the Commission Statement from the Directorate General Environment accompanying the development of criteria for wooden furniture the inclusion of a global warming potential indicator (GWP) was pointed out to be considered in this revision. Related to this issue, the possibility to set criteria regarding energy consumption in the different life stages of a furniture was proposed.

Energy demand of materials

- Energy consumption in the production of materials, associated to the emission of CO_2 and other emissions, is a key environmental issue. From a study review of EPDs office seating solution[57] it was concluded that the potential impacts on Global Warming Potential, Eutrophication Potential and Acidification Potential and heavy metals show a strong correlation with the energy consumption data.
- Main energy demand of furniture is associated to materials. A significant parameter conditioning the environmental behaviour of materials is the embodied energy. It can be seen that wood has relative low energy demand comparing to other materials (such as plastics or wooden panels) whereas aluminium is the most energy demanding material. [58]

[57] Askham, C.,Hanssen, O.J., Gade, A.L. ,Nereng, G., Aaser, C.P., Christensen, P. Strategy tool trial for office furniture. Int J Life Cycle Assess (2012) 17:666–677 DOI 10.1007/s11367-012-0406-y

[58] Forest & Wood Products Research & Development Corporation. Review of the Environmental Impact of Wood Compared with Alternative Products Used in the Production of Furniture. 2003

Table 5. Process energy requirements for some materials used in furniture[58].

Material	Material Embodied Energy (MJ/kg)
Kiln dried sawn softwood	3.4
Kiln dried sawn hardwood	2.0
Air dried sawn hardwood	0.5
Particleboard	8.0
Medium Density Fibreboard (MDF)	11.3
Plywood	10.4
Glued-laminated timber	11.0
Laminated veneer timber	11.0
Plastics (general)	90.0
PVC	80.0
Glass	12.7
Mild steel	34.0
Galvanised mild steel	38.0

- In that sense some Ecolabel Schemes, such as French Ecolabel (NF Environnement) fixed maxim values for energy demand for the different types of furniture taking into account the embodied energy of each material (MJ/kg) and the weight of each materials (Kg)[59]. This criterion can have high improvement potential, since materials with lower energy demand (such as wood) would be prioritized from high energy demanding materials such as primary metals. Nevertheless these parameters are already treated in criterion on materials (criterion 3) by fixing minimum percentage of recycled materials. This criterion could also lead to the use of less material in general.

- The EU Ecolabel for wooden covering[60] fixes a maximum energy demand for wooden panels. The Nordic Ecolabel for Furniture and Fitments has the same approach. In both cases, wood raw material from certified sustainable forestry and/or proportion recycled raw material, proportion of renewable fuel, electricity and fuel consumption are used to calculate the energy demand.

Methodology applied in Nordic Ecolabelling for Furniture and Fitments:

The energy consumed in the production of the wood-based panel must be less than or equal to the requirement specified in the table for electricity and fuel consumption.

Environmental parameter	Requirement
A = Wood raw material from certified sustainable forestry (%)1	-
B = Proportion of recycled raw material (%)2	-
C = Proportion of renewable fuel (%)3	-
D = Electricity consumption (kWh/m2)	Max 1 kWh/kg
E = Fuel consumption (kWh/m2)	Max 3.4 kWh/kg

[59] NF Environnement Ameublement nf 217 Regles generales de la marque NF Environnement : www.marque-nf.com

[60] COMMISSION DECISION of 26 November 2009 on establishing the ecological criteria for the award of the Community Ecolabel for wooden floor coverings

The total score P calculated using the formulae below. To meet the requirement the points score: P must be at least 9.5 in the case of chipboard; P must be at least 8.0 in the case of other wood-based panels

$$P = \frac{A}{25} + \frac{B}{25} + \frac{C}{25} + \left(4 - \frac{D}{0{,}25}\right) + \left(4 - \frac{E}{0{,}85}\right)$$

According to this, the following issue should be considered for the revision of the current criterion:

i. Discuss if a criterion should be set regarding energy demand of total materials.

ii. Discuss if a criterion should be set regarding energy demand of wood-based panels

Energy demand during use

- Lighting sources in furniture: Evolving improvements have recently taken the light sources to the forefront of design. According to the Directive 2009/125/EC, ecodesign aims at reducing the environmental impacts of products, including the energy consumption throughout their entire life cycle. Apart from the user´s behaviour, the energy efficiency requirements imposed to products on the design phase should be considered.

4 GPP CRITERIA

Green Public Procurement (GPP) criteria for furniture are revised in order to consider the most significant environmental impacts, and will be based on data from an evidence base, on Ecolabel criteria and on information collected from stakeholders from industry, civil society and Member States. The proposed recommendations will be according core and comprehensive criteria, added with award criteria and technical specifications:

- **Core GPP criteria**: address the most significant environmental impacts, and are designed to be used with minimum additional verification effort or cost increases
- **Comprehensive GPP criteria**: are intended for use by authorities who seek to purchase the best environmental products available on the market, and may require additional administrative effort or imply a certain cost increase as compared to other products fulfilling the same function.
- **Award criteria:** Award criteria are the criteria on which the contracting authority will compare offers and base its award. Under EU procurement rules, only two award criteria can be used 'the lowest price' and 'the most economically advantageous tender'. Where the criteria of the 'economically most advantageous tender' is chosen, relevant environmental criteria can be inserted either as a benchmark to compare green offers with each other (in the case where the technical specifications define the contract as being green) or as a way of introducing an environmental element and giving it a certain weighing.
- **Technical specifications:** Technical specifications provide a clear, accurate and full description of the requirement and standard to which goods, works or services should conform. Under the Procurement Directives (2004/17 and 2004/18 EC) contracting authorities can define the required characteristics of goods, works or services, such as quality levels, environmental performance levels, design for all requirements (including accessibility for disabled persons) and other parameters. There are a number of options for how to do this, including by reference to standards or functional requirements, including environmental characteristics.

SCOPE

The current scope for Green Public Procurement of furniture the following is:

Furniture is a broad product group that encompasses very different types of furniture (chairs, tables, wardrobes, shelves, cupboards...) with very different uses (for schools, offices, kitchens, bathrooms, outdoors, special uses, etc.). The criteria cover:

- **Indoor furniture**: This includes indoor furniture for business purposes, e.g. offices and schools, as well as for domestic purposes. It includes all free-standing or built-in furniture units, which are used for storing, hanging, lying, sitting, working and eating. It does not include, however, building products (for example, steps, walls, moulding, panels), sanitary equipment, carpets, fabrics, office supplies, and other products, whose primary purpose is not to function as furniture.
- **Outdoor furniture:** This includes mainly benches, tables and chairs, excluding other products, whose primary purpose is not to function as furniture (such as streetlights, bike-parks, playgrounds, etc.).

The criteria are based on existing ecolabel sources and focused on the materials which are most typically used in the production of furniture: wood and wood-based materials, metals, plastic, padding and textiles. Criteria are also recommended for coating and adhesives/glues in the assembly of the product and for packaging.

Summary for discussion: Proposal for new definition and scope of Green Public Procurement of furniture

Regarding to the current scope and definition for the Green Public Procurement of furniture, no major changes are currently proposed, since GPP criteria already covers furniture made of different materials.

CURRENT CORE GPP CRITERIA

SPECIFICATIONS

Wood and wood-based materials

1.All wood and wood-based materials shall come from legally sourced timber.

Verification:

Certificates of chain of custody for the wood certified as FSC1, PEFC2 or any other equivalent means of proof, will be accepted as proof of compliance.

The legal origin of wood can also be demonstrated with a tracing system being in place. These voluntary systems may be 3rd party certified, often as part of ISO 9000 and/or ISO 14 000 or EMAS management system. If wood stems from a country that has signed a Voluntary Partnership Agreement (VPA) with the EU, the FLEGT licence may serve as proof of legality.

For the non-certified wood bidders shall indicate the types (species), quantities and origins of the wood used in production, together with a declaration of their legality. As such the wood shall be able to be traced throughout the whole production chain from the forest to the product.

In specific cases, where the evidence provided is not considered sufficient to prove compliance with the requested technical specifications, contracting authorities may ask suppliers for further clarifications of proof.
Plastic parts 2.All plastic parts ≥ 50g shall be marked for recycling according to ISO 114 69 or equivalent and must not contain additions of other materials that may hinder their recycling.
Surface coating of Wood, plastic and/or metal parts 3.The products used for surface coating shall: - Not contain hazardous substances that are classified according to Directive 1999/45/EC as carcinogenic (R40, R45, R49), harmful to the reproductive system (R60, R61, R62, R63), mutagenic (R46, R68), toxic (R23, R24, R25, R26, R27, R28, R51), allergenic when inhaled (R42) or harmful to the environment (R50, R50/53, R51/53, R52, R52/53, R53), cause heritable genetic damage (R46), danger of serious damage to health by prolonged exposure (R48), possible risks of irreversible effects (R68). - Not contain more than 5% by weight of volatile organic compounds (VOCs). - For phthalates: no use is allowed of phthalates that at the time of application fufil the classification criteria of any of the following risk phrases (or combinations thereof): R60, R61, R62, in accordance with Directive 67/548/EEC and its amendments. - Not contain aziridine - Not contain Chromium (VI) compounds
Adhesives and glues 4.The VOC content in adhesives used in the assembly of furniture shall not exceed 10% by weight.
Packaging materials 5.Packaging must consist of readily recycled material, and/or materials taken from renewable resources, or be a multi-use system. 6.All packaging materials shall be easily separable by hand into recyclable parts consisting of one material (e.g. cardboard, paper, plastic, textile).
Durability, reparability, fitness for use and ergonomics 7.Furniture must meet [insert relevant national/international quality standards] or equivalent regarding serviceability (e.g. safety, abrasion resistance, tensile strength, light fastness, rub fastness, deformation by compression, ergonomics).

AWARD CRITERIA
1. **Raw material/Sustainable forest management:** The percentage of the final product made of wood, wood fibres or wood particles stemming from forests that are verified as being managed so as to implement the principles and measures aimed at ensuring sustainable forest management, on condition that these criteria characterize and are relevant for the product. . In Europe, these principles and measures shall at least correspond to those of the Pan-European Operational Level Guidelines for Sustainable Forest Management, as endorsed by the Lisbon Ministerial Conference on the Protection of Forests in Europe (2 to 4 June 1998). Outside Europe they shall at least correspond to the UNCED Forest Principles (Rio de Janeiro, June 1992) and, where applicable, to the criteria or guidelines for sustainable forest management as adopted under the respective international and regional initiatives (ITTO, Montreal Process, Tarapoto Process, UNEP/FAO Dry-Zone Africa Initiative).
2. Recycled materials content: Percentage by weight of recycled content of wood-based materials, plastics and/or metals in the final piece of furniture.
3. Textiles : The products shall comply with (insert the core criteria of the product sheet for textiles)
4**. [for padding materials] Ecolabel criteria for padding materials** The padding material shall comply with the EU Ecolabel criteria available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:236:0010:0015:EN:PDF).

CURRENT COMPREHENSIVE GPP CRITERIA

SPECIFICATIONS
<u>Wood and wood-based materials</u> 1.All wood and wood-based materials shall come from legally sourced timber.
<u>Preservatives [only for outdoors furniture] (COMPREHENSIVE GPP CRITERIA)</u> 2.Wood classified with a durability class of 1 or 2 according to EN 350-2 or equivalent must not have been treated with preservatives. 3.Wood not classified with a durability class of 1 or 2 according to EN 350-2 or equivalent, must not have been treated with substances classified according to Directive 1999/45/EC as carcinogenic (R40, R45, R49), harmful to the reproductive system (R60, R61, R62, R63), mutagenic (R46, R68) or allergenic when inhaled (R42). 4.The active substances in preservatives must not be based on arsenic, chrome or

organic tin compounds.

Plastic parts

5. All plastic parts ≥ 50g shall be marked for recycling according to ISO 114 69, or equivalent, and must not contain additions of other materials that may hinder their recycling.

Surface coating of wood, plastic and/or metal parts

6. The products used for surface coating shall:

• Not contain hazardous substances that are classified according to Directive 1999/45/EC as carcinogenic (R40, R45, R49), harmful to the reproductive system (R60, R61, R62, R63), mutagenic (R46, R68), toxic (R23, R24 , R25, R26, R27, R28, R51), allergenic when inhaled (R42) or harmful to the environment (R50, R50/53, R51/53, R52,
R52/53, R53), cause heritable genetic damage (R46), danger of serious damage to health by prolonged exposure (R48), possible risks of irreversible effects (R68).
For phthalates: No use is allowed of phthalates that at the time of application fulfil the classification criteria of any of the following risk phrases (or combinations thereof):
R60, R61, R62, in accordance with Directive 67/548/EEC and its amendments.

• Not contain aziridine
• Not contain Chromium (VI) compounds
• Not contain more than 5% by weight of volatile organic compounds (VOCs).

Adhesives and glues

7. The VOC content of adhesives used in the assembly of furniture shall not exceed 10% by weight.

Polyurethane foams

8. The blowing agents of polyurethane foams (PUR-foams) must not be HFC or methylene chloride.

Packaging materials (CORE AND COMPREHENSIVE GPP CRITERIA)

9.Packaging must consist of readily recycled material, and/or materials taken from renewable resources, or be a multi-use system.

10.All packaging materials shall be easily separable by hand into recyclable parts consisting of one material (e.g. cardboard, paper, plastic, textile).

Durability, reparability, fitness for use and ergonomics (CORE AND COMPREHENSIVE GPP CRITERIA)

11.Furniture must meet [insert relevant national/international quality standards] or equivalent regarding serviceability (e.g. safety, abrasion resistance, tensile strength, light fastness, rub fastness, deformation by compression, ergonomics).

AWARD CRITERIA
1.Sustainable forest management The percentage of the final product made of wood, wood fibres or wood particles stemming from forests that are verified as being managed so as to implement the principles and measures aimed at ensuring sustainable forest management, on condition that these criteria characterize and are relevant for the product. . In Europe, these principles and measures shall at least correspond to those of the Pan-European Operational Level Guidelines for Sustainable Forest Management, as endorsed by the Lisbon Ministerial Conference on the Protection of Forests in Europe (2 to 4 June 1998). Outside Europe they shall at least correspond to the UNCED Forest Principles (Rio de Janeiro, June 1992) and, where applicable, to the criteria or guidelines for sustainable forest management as adopted under the respective international and regional initiatives (ITTO, Montreal Process, Tarapoto Process, UNEP/FAO Dry-Zone Africa Initiative).
2.Recycled materials content Percentage by weight of recycled content of wood-based materials, plastics and/or metals in the final piece of furniture.
3.Packaging The tenderer should indicate the percentage by weight of recycled content in the packaging materials (plastics and cardboard).
4. [For textiles] Please insert the criteria of the product sheet for textiles.
5. For Textiles: Organically produced cotton or other natural fibres Bidders must indicate the proportion of cotton or other natural fibres used in the textiles by weight deriving from organic production. To be considered as such, the fibre must be produced according to Regulation (EC) No 834/2007.
6. [For textiles] Recycled fibres Bidders must indicate the proportion of the textile by weight made from recycled fibres, i.e. fibres originating only from cuttings from textile and clothing manufacturers or from post-consumer waste (textile or otherwise).
7. [For padding materials] Ecolabel criteria for padding materials The padding material in the furniture shall comply with the EU ecolabel criteria (full criteria document available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:236:0010:0015:EN:PDF).

DISCUSSION FOR REVISION

Summary for discussion: Preservatives (COMPREHENSIVE GPP CRITERIA)

Preservatives (COMPREHENSIVE GPP CRITERIA)

i. The current criterion: "*The active substances in preservatives must not be based on arsenic, chrome or organic tin compounds*" could be modified by: According to the Biocidal Products Regulation (BPR, Regulation (EU) 528/2012)[61], only biocidal products containing biocidal active substances approved by European Commission and authorised by this product type shall be allowed for use in wood.

ii. The criterion: "Wood classified with a durability class of 1 or 2 according to EN 350-2 or equivalent must not have been treated with preservatives" will remain.

iii. The current criterion: "*Wood not classified with a durability class 1 or 2 according to EN350-2 or equivalent, must not have been treated with substances classified according to Directive 1999/45/EC as carcinogenic (R40, R45, R49), harmful to the reproductive system (R60, R61, R62, R63), mutagenic (R46, R68) or allergenic when inhaled (R42)*" will be modified by: Biocides shall fulfil the requirements on hazardous substances (section 2 EU Ecolabel criteria (a) and (b)) for treated wood not classified with a durability class 1 or 2 according to EN350-2 or equivalent.

iv. Halogenated organic compounds such as CFC, HFC, HCFC or methylene chloride shall not be used as blowing or auxiliary blowing agents in the production of PUR in upholstered furniture.

Summary for discussion: GPP CRITERIA in general

i. Include Non Wood Forest Products to criteria regarding traceability.

ii. Include criteria regarding glass material.

iii. Propose harmonization with EU Ecolabel criteria.

iv. According to a harmonized approach with EU Ecolabel criteria, all materials, substances and preparation used must comply with the requirements on hazardous substances set out in section 2 of EU Ecolabel criteria.

v. **VOC content**: Propose a more restrictive limit for volatile organic compounds (VOCS) (< 5% by weight) and harmonize with EU Ecolabel criteria for furniture.

vi. According to a harmonized approach with EU Ecolabel criteria, all materials, substances and preparation used must comply with the requirements on

[61] More information available online at: http://echa.europa.eu/regulations/biocidal-products-regulation

hazardous substances set out in section 2 of EU Ecolabel criteria.

vii. Propose a more restrictive limit for the VOC content of adhesives used in the assembly of furniture (< 10% by weight) and harmonize the percentage allowed of the VOC content of adhesives with EU Ecolabel criteria.

viii. According to a harmonized approach with EU Ecolabel criteria, include a criteria regarding maintenance.

ix. According to a harmonized approach with EU Ecolabel criteria, include a criteria regarding recycling and waste.

x. According to a harmonized approach with EU Ecolabel criteria, include a criteria regarding consumer information.

The revision of the GPP criteria will be more extended and elaborated once the revised criteria for the EU Ecolabel are in a more developed stage.

5 APPENDIX I: SUMMARISED OUTCOMES OF THE QUESTIONNARIES ON CURRENT EXISTING SCOPE AND ECOLABEL CRITERIA

The results of the questionnaire (collected on June 2013) are summarized in this table which was sent to relevant stakeholders with the aim to know their opinion about current Ecolabel criteria that need to be changed, withdrawn or prolonged.

Table 6. Outcomes of the questionnaires on current existing scope and Ecolabel criteria

Definition and scope		AVERAGE %		
		YES	NO	NO ANSWER
1	Do you agree with the proposed product group name?	63%	21%	16%
2	Is the proposed definition appropriate and suitable for this product category?	42%	42%	16%
3	Are there any furniture types or materials which are excluded by this definition which, in your opinion, shall be included?	37%	42%	21%
4	Are there any furniture types or materials which shall be, in your opinion, explicitly excluded from the scope of the product group, but which are included by the proposed definition?	16%	58%	26%
5	Are differences in definition and scope necessary for the EU Ecolabel and GPP?	26%	37%	37%
6	Shall minimum share (% of weight) be set for solid wood and wooden based material as well as for any individual material other than them?	5%	74%	21%
7	Do you agree that glass components, as well as all other replaceable pieces, should be included in the scope and in the weight calculation?	74%	5%	21%
Criterion 1: Product description		**YES**	**NO**	**NO ANSWER**
8	Do you consider the current criterion formulation appropriate?	53%	37%	11%
9	Do you consider the current formulation of assessment and verification procedure (i.e. providing a description of the product including functional description, product name or reference code, the total weight of the product, the materials used in the product, including fixtures and fittings, and their respective weight) sufficient and appropriate?	53%	21%	26%
Criterion 2: Hazardous substances		**YES**	**NO**	**NO ANSWER**
10	Which substances or functional groups of substances contained in furniture products and used in their manufacturing are of special concern? Could you indicate them?	-	-	-
11	Are you aware of substances which should be particularly investigated to see if they should be explicitly excluded?	16%	58%	26%
12	Do you agree to merge several criteria (e.g. criteria 2, 3c, 3d, 3e, 4a, 4b, 4c, 4d, 4e and 5a) within one criterion 2 regarding excluded and limited substances and mixtures?	63%	26%	11%

13	Is the current verification procedure (i.e. submitting a declaration of compliance with this criterion, together with a list of ingredients and related documentation, such as Safety Data Sheets) sufficient and appropriate?	**53%**	**26%**	**21%**
14	Is administrative workload for the Competent Bodies and/or applicants considered reasonable?	**32%**	**16%**	**53%**
Criterion 3: Wood and Wood-Based Material Requirements		**YES**	**NO**	**NO ANSWER**
16	What proportion of wood in wooden furniture, according to your knowledge, arises from third party certified sustainable forests?	-	-	-
17	Up to what extent is it considered feasible to increase the proportion of certified wood in wood furniture?	-	-	-
18	Are other forest/biomass materials usually used in furniture sector? If, yes, which materials are used and in which applications?	**53%**	**32%**	**16%**
19	It is feasible to set these criteria to other biomass materials such as bamboo, hemp or willow?	**26%**	**21%**	**53%**
20	Up to what extent is considered feasible to limit the content of free formaldehyde from untreated raw wood-based materials?	-	-	-
21	What is your opinion regarding the restriction on the use of GMO wood in this product group?	-	-	-
22	Is the current verification procedure (please see the attached criteria text) sufficient and appropriate?	**47%**	**16%**	**37%**
23	Is administrative workload for the Competent Bodies and/or applicants considered reasonable?	**37%**	**5%**	**58%**
Criterion 4: Surface treatments		**YES**	**NO**	**NO ANSWER**
23	Up to what extent do you consider feasible to decrease VOCs content in adhesives?	-	-	-
24	Up to what extent do you consider feasible to limit the content of free formaldehyde?	-	-	-
25	Do you have additional proposals regarding revision of this criterion (e.g. regarding biocides)?	-	-	-
26	Is the current verification procedure/test (i.e. appropriate declarations, Safety Data Sheet or equivalent documentation for each chemical product used in the assembly of furniture, test reports or a declaration from the supplier for the free formaldehyde content) sufficient and appropriate?	**53%**	**16%**	**32%**
27	Is administrative workload for the Competent Bodies and/or applicants considered reasonable?	**42%**	**5%**	**53%**
Criterion 5: Assembly of Furniture		**YES**	**NO**	**NO ANSWER**
28	Up to what extent do you consider feasible to decrease the content of VOCs in the adhesives used in the assembly of furniture?	-	-	-
29	Is the current verification procedure (i.e. a declaration provided by the applicant indicating all adhesives used in the assembly of furniture) sufficient and appropriate?	**58%**	**16%**	**26%**
30	Is administrative workload for the Competent Bodies and/or applicants considered reasonable?	**47%**	**5%**	**47%**
Criterion 6: Final product		**YES**	**NO**	**NO ANSWER**

31	Do you agree in setting additional requirements in criterion 6(a) regarding ergonomics and fitness for use? If yes, do you have any proposals which aspects shall be additionally covered and what verification and assessment procedure could be proposed?	**37%**	**26%**	**37%**
32	It is feasible to fix a minimum durability guaranteed (years) after manufacturing?	**47%**	**32%**	**21%**
33	Which is the average lifespan of furniture?	-	-	-
34	Is there any EN durability standard developed to assess durability?	**53%**	**11%**	**37%**
35	Do you agree to set more restringing criteria for design for durability and remanufacturing?	**42%**	**32%**	**26%**
36	Should a criterion on information to consumer (6c) include not only information on assembly, but also information on disassembly and substitution of components and repair?	**63%**	**11%**	**26%**
37	Is the current verification procedure/test sufficient and appropriate?	**63%**	**0%**	**37%**
38	Is administrative workload for the Competent Bodies and/or applicants considered reasonable?	**53%**	**0%**	**47%**
NEW/ADDITIONAL CRITERIA				
Proposal Criteria for other materials: plastic, metal, textile, glass, stone and padding materials		**YES**	**NO**	**NO ANSWER**
39	Up to what extent is feasible to mark for recycling the plastic materials used in furniture?	-	-	-
40	What are the main barriers to recycle metal and plastic materials from furniture? Up to what extent is feasible to recycle metal and plastic materials used in furniture?	-	-	-
41	Do you consider feasible and appropriate to set minimum share of renewable materials (wood, bio-plastics, etc.)? To what extent are bioplastics used in furniture sector?	**21%**	**47%**	**32%**
42	Is it feasible to set a minimum share of recycled glass for glass components?	**11%**	**42%**	**47%**
43	Should the EU Ecolabel criteria for textiles be used for the respective requirements regarding textiles in furniture?	**63%**	**5%**	**32%**
44	Should the padding materials comply with the EU Ecolabel criteria for bed mattresses[62] (requirements set for the latex and polyurethane foams)?	**47%**	**16%**	**37%**
Introduction of new requirements concerning energy consumption and/or Global Warming Potential indicator		**YES**	**NO**	**NO ANSWER**
45	Are lighting sources in furniture sector relevant enough to set a requirement in this criterion set?	**26%**	**37%**	**37%**
46	What types of light sources (energy class, LEDs, reflector lamps, etc) are used in furniture products?	-	-	-

[62] Commission decision of 3 September 2002 establishing revised ecological criteria for the award of the Community eco-label to bed mattresses, available online at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:236:0010:0015:EN:PDF

47	Are you aware if energy consumption has been extensively assessed for furniture production? Is there any methodology used by furniture industry in order to determine energy consumption? Are there any thresholds /requirements recommended by industry?	**32%**	**16%**	**53%**
Introduction of specific requirements concerning Ecodesign		**YES**	**NO**	**NO ANSWER**
48	Is a criterion on "Ecodesign" such as "Design for disassembling" feasible? How could be such criterion shaped?	**42%**	**26%**	**32%**
49	Can you provide information on Ecodesign measures currently applied in the sector? Which Ecodesign measures do you consider particularly relevant for these criteria revision process?	**21%**	**32%**	**47%**
ADDITIONAL DISCUSSION POINTS				
Additional points for consideration in the criteria revision		**YES**	**NO**	**NO ANSWER**
50	Is your organization interested in applying for EU Ecolabel?	**21%**	**42%**	**37%**
51	If your organization had previously applied for the EU Ecolabel?	**0%**	**68%**	**32%**
52	Can you provide any relevant Life Cycle Assessment or Environmental Product Declaration or any environmental related document?	**42%**	**32%**	**26%**
53	Do you have any input on the prices of green furniture products compared to conventional products in furniture sector, which could be used subsequently in the Life Cycle Costing analysis for GPP?	**0%**	**58%**	**42%**
54	Any other issues of relevance	-	-	-

6 APPENDIX II: HAZARD STATEMENTS ACCORDING TO ARTICLE 6(6) OF EU ECOLABEL LEGISLATION EC/66/2010

According to the Article 6(6) of EU Ecolabel legislation EC/66/2010[63], the product or any part of it thereof shall not contain substances or mixtures meeting the criteria for classification as toxic, hazardous to the environment, carcinogenic, mutagenic or toxic for reproduction (CMR), in accordance with CLP Regulation (EC) No 1272/2008, nor to goods containing substances referred to in Article 57 of REACH Regulation. Hazardous substances can be classified through the hazard statements provided below:

Table 7. Hazard statements according to article 6(6) of EU Ecolabel legislation EC/66/2010

Hazard statement according to CLP 1272/2008/EEC	Associated risk phrases according to Directive 67/548/EEC
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

[63] Regulation (EC) N o 66/2010 of the European Parliament and the council of 25 November 20009 on the EU Ecolabel. For more details see: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:027:0001:0019:EN:PDF

Hazard statement according to CLP 1272/2008/EEC	Associated risk phrases according to Directive 67/548/EEC
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 symptons or breathing difficulties if inhaled	R42
H317 May cause allergic skin reaction	R43

7 APPENDIX III: DEROGATION/SUBSTITION FORM

Derogation request		Substitution proposal	
Chemical substance name(s)		**Chemical substance name(s)**	
CAS, EC or Annex VI numbers		**CAS, EC or Annex VI numbers**	
Functional need and significance in the final product		**Functional need and significance in the final product**	
CLP Classifications from EU Ecolabel listing	*Please note if they are self-classified or have a harmonised classification*	**CLP Classifications from EU Ecolabel listing**	*Please note if they are self-classified or have a harmonised classification*
Current regulatory status	*E.g. on or proposed for the SVHC candidate list, registered, restricted*	**Current regulatory status**	*E.g. on or proposed for the SVHC candidate list, registered, restricted*
Existing scientific evidence and risk assessments relating to the substance	*E.g. REACH/ECHA dossiers, reference to scientific research*	**Indication and comparison of environmental performance**	*- Identification of classification/non-classification status of the substance* *- identification of substances that can/have been substituted and supporting evidence of the improvement for specific hazards i.e. CLP classification, reference to scientific research/screening exercises*
The relevance of hazard classifications along the life cycle of the product *e.g.* manufacturing, use, disposal	*E.g. if the CLP classification and greatest risk of exposure relates to the form in which a substance is handled in the factory*	**The life cycle relevance of environmental improvements**	*Quantitative evidence of where the greatest improvement potential can be evidenced e.g. workforce exposure, wastewater, consumer exposure risk*

Typical concentration in the final product or specific components and articles (including ranges depending on function)		**Typical concentration in the final product or specific components and articles (including ranges depending on function)**	
Proportional contribution to final product classification (where relevant)	*Particularly relevant for mixtures and with reference to CLP rules*	**Proportional contribution to final product classification (where relevant)**	*Particularly relevant for mixtures and with reference to CLP rules*
Technical assessment of the functional need	*The necessity to be present in the product and according to its end-use or consumer requirements*	**Compliance with product performance and functional requirements**	*Evidence that the substitute fulfills the same requirements and technical needs, mechanisms used e.g. fitness for use test results, specifications*
Market availability of alternatives, their hazard profile and the potential for substitution	*Market availability and technical status of alternatives – why are they currently not suitable?*	**Market availability, production volumes and other potential substitutes**	*E.g. Market diffusion and technical status of substitute(s)*
Additional information		**Additional information**	

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