EN

ANNEX

FRAMEWORK

Assessment and verification requirements

The specific assessment and verification requirements are indicated within each criterion.

Where the applicant is required to provide declarations, documentation, analyses, test reports, or other evidence to show compliance with the criteria, these may originate from the applicant and/or his supplier(s) and/or their suppliers, etc., as appropriate.

Competent bodies shall preferentially recognise tests which are carried out by laboratories or institutions accredited according to ISO 17025 and verifications performed by bodies which are accredited under the EN 45011 standard or an equivalent international standard.

Where appropriate, test methods other than those indicated for each criterion may be used if the competent body assessing the application accepts their equivalence.

Where appropriate, competent bodies may require supporting documentation and may carry out independent verifications.

As a pre-requisite, the product must meet all respective legal requirements of the country (countries) in which the product is intended to be placed on the market. The applicant shall declare the product's compliance with this requirement.

EU ECOLABEL CRITERIA

Criteria for awarding the EU Ecolabel to furniture:

1. Product description
2. General hazardous substance requirements
3. Wood and wood-based materials
4. Plastics
5. Metals
6. Upholstery covering materials
   - 6.1. Leather
   - 6.2. Textiles
   - 6.3. Coated fabrics
7. Upholstery padding materials
   - 7.1. Polyurethane foam
   - 7.2. Latex foam
   - 7.3. Other materials
8. Glass
9. Final Product
10. Information appearing on the EU Ecolabel

The EU Ecolabel criteria reflect the best environmental performing products on the furniture market. The criteria are focussed on a "per material" basis for ease of assessment given that many furniture products will only contain one or two of the above listed materials.

Whilst the use of chemicals and release of pollutants is part of the production process, the use of hazardous substances are excluded whenever possible or limited to the minimum necessary to provide an adequate function and at the same time strict quality and safety standards for furniture products. For this purpose, derogation conditions for specific substances/groups of substances are granted in exceptional circumstances, in order not to shift the environmental burden to other life cycle phases or impacts and only when there are no viable alternatives existing on the market.

CRITERION 1. PRODUCT DESCRIPTION

A technical description of the product shall be provided to the Competent Body.

Assessment and verification:

The applicant shall provide the following documentation:

- Technical drawings that illustrate the different sub-components and components used in the assembly of the product;

- A declaration stating the overall list of materials used together with the information on the total weight of the product unit and how the weight is split amongst solid wood and wood-based materials, plastics, metals, textile fibres and fabrics, leather, glass and padding materials. Weights of different materials shall be expressed as grams or kilograms and as a percentage of the total product unit weight.
- A similar list of materials shall also be provided for packaging and the overall contribution of packaging mass to the total mass of the packaged product shall be expressed.

CRITERION 2. GENERAL HAZARDOUS SUBSTANCE REQUIREMENTS

2.1. Restricted hazard classifications and derogations

The EU Ecolabel may not be awarded if the product or any article of it, as defined in Article 3(3) of Regulation (EC) No 1907/2006 of the European Parliament and of the Council[1], or any homogenous part of it contains a substance or mixture meeting the criteria for classification with the hazard statements or risk phrases specified in the table below, in accordance with Regulation (EC) No 1272/2008[2] or Council Directive 67/548/EEC[3], or contains a substance or mixture referred to in Article 57 of Regulation (EC) No 1907/2006, unless specific derogation has been granted.

The most recent classification rules adopted by the Union shall take precedence over the listed hazard classifications and risk phrases. Applicants shall therefore ensure that any classifications are based on the most recent classification rules.

The hazard statements and the risk phrases in the table below generally refer to substances. However, if information on substances cannot be obtained, the classification rules for mixtures apply.

The use of substances or mixtures which change their properties upon processing (e.g. become no longer bioavailable or undergo chemical modification) so that the identified hazards no longer apply are exempted from the above requirements unless specifically restricted in relevant furniture material sub-criteria.

Table 1

Restricted hazard classifications and their categorisation

Acute toxicity

[1] Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (OJ L 396, 30.12.2006, p. 1).

[2] Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (OJ C 204, 9.8.2008 p.47).

[3] Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances (OJ 196, 16.8.1967, p. 1).

Category 1 and 2	Category 3
H300 Fatal if swallowed (R28)	H301 Toxic if swallowed (R25)
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)
H304 May be fatal if swallowed and enters airways (R65)	EUH070 Toxic by eye contact (R39/41)
Specific target organ toxicity	
Category 1	**Category 2**
H370 Causes damage to organs (R39/23, R39/24, R39/25, R39/26, R39/27, R39/28)	H371 May cause damage to organs (R68/20, R68/21, R68/22)
H372 Causes damage to organs (R48/25, R48/24, R48/23)	H373 May cause damage to organs (R48/20, R48/21, R48/22)
Respiratory and skin sensitisation	
Category 1A	**Category 1B**
H317: May cause allergic skin reaction (R43)	H317: May cause allergic skin reaction (R43)
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled (R42)	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled (R42)
Carcinogenic, mutagenic or toxic for reproduction	
Category 1A and 1B	**Category 2**
H340 May cause genetic defects (R46)	H341 Suspected of causing genetic defects (R68)
H350 May cause cancer (R45)	H351 Suspected of causing cancer (R40)
H350i May cause cancer by inhalation (R49)	
H360F May damage fertility (R60)	H361f Suspected of damaging fertility (R62)
H360D May damage the unborn child (R61)	H361d Suspected of damaging the unborn child (R63)
H360FD May damage fertility. May damage the unborn child (R60, R60/61)	H361fd Suspected of damaging fertility. Suspected of damaging the unborn child (R62/63)
H360Fd May damage fertility. Suspected of damaging the unborn child (R60/63)	H362 May cause harm to breast fed children (R64)
H360Df May damage the unborn child. Suspected of damaging fertility (R61/62)	
Hazardous to the aquatic environment	
Category 1 and 2	**Category 3 and 4**
H400 Very toxic to aquatic life (R50)	H412 Harmful to aquatic life with long-lasting effects (R52/53)
H410 Very toxic to aquatic life with long-lasting effects (R50/53)	H413 May cause long-lasting effects to aquatic life (R53)
H411 Toxic to aquatic life with long-lasting effects (R51/53)	

Hazardous to the ozone layer	
EUH059 Hazardous to the ozone layer (R59)	

In accordance with Article 6(7) of Regulation (EC) No 66/2010[4] the following substances are specifically derogated from the requirements set out in criterion 2.1, subject to meeting the derogation conditions set out in Table 2.

Table 2

Derogations to the hazard restrictions in Table 1 and applicable conditions

Substances / Groups of substances	Applicability	Derogated classification(s)	Derogation conditions
(a) Flame retardants	Furniture upholstery materials	H317(1B), H373, H411, H412, H413	Only permitted when a flame ret ardancy function is required to comply with fire safety standards in the country of sale.
(b) Flame retardants / Antimony Trioxide (ATO)		H351	Only permitted when ATO is used as a synergist in the backcoating of textiles and only when a flame retardancy function is required to comply with fire safety standards. Emissions to air in the workplace where ATO is applied shall meet an eight hour occupational exposure limit value of 0,5mg/m^3.
(c) Heavy metals / Nickel	Metal components	H317, H351, H372	Only permitted when i) used in stainless steel components and where the Nickel release rate is shown to be less than 0.5µg/cm^2/week according to EN 1811., ii) used in nickel-plated carbon steel components that are considered not to come into pronlonged skin contact during normal use of the furniture product.
Heavy metals / Zinc		H412	Only when used in anti-corrosive coatings for iron or steel either subject to heavy physical wear and/or not considered to come into prolonged skin contact.
(d) Dyestuff for dyeing and non-pigment printing	Textiles, leather and coated fabrics in furniture upholstery covering materials.	H301, H311, H331, H317, H334	Only permitted when referring to dust free dye formulations or where automatic dosing and dispensing of dyes shall be used by dye houses and printers to minimise worker exposure.
		H411, H412, H413	With solution dyeing and/or digital printing, no further requirements apply. Otherwise, reactive, direct, vat or sulphur dyes with these classifications meets at least one of the following conditions: —High affinity dyes are used;

[4] Regulation (EC) No 66/2010 of the European Parliament and of the Council of 25 November 2009 on the EU Ecolabel. (OJ L 27, 30.1.2010 p.1)

			— Colour matching instrumentation is used; — Standard Operating Procedures for the dyeing process are used; — Colour removal is used in wastewater treatment*.
(e) Optical brightners	Textiles, leather and coated fabrics in furniture upholstery covering materials.	H411, H412, H413	Optical brighteners may only be applied in the following cases: —In white coloured printing; —As additives during the production of acrylic, polyamide or polyester with a recycled content.
(f) Water, dirt and stain repellents	Use in any surface treatments of furniture components	H413	The repellent and its degradation products shall be readily biodegradable and non-bioaccumulative in the aquatic environment, including aquatic sediment.
(g) Auxiliaries (comprising carriers, levelling agents, dispersing agents, surfactants, thickeners and binders)	Use in treatment of furniture upholstery covering materials (textiles, leather or coated fabrics).	H301, H371, H373, H334, H411, H412, H413, EUH070	Only permitted when recipes shall be formulated using automatic dosing systems and processes shall follow standard operating procedures.
		H311, H331, H317(1B)	Only permitted when it can be shown that substances classified with H311, H331 or H317(1B) are not present in the final product at concentrations greater than 1.0% w/w.
(h) Isocyanatess	Use in adhesives during assembly of different furniture components and sub-components	H315, H317, H319, H332, H334, H335, H351, H373	Only applies to high performance isocyanate adhesives / resins which have zero or negligible isocyanate emissions after curing. Workers must use appropriate personal protective equipment an in well ventilated environment where isocyanate concentration is maintained below 0,2 mg/m^3 at all times and below 0,05 mg/m^3 as an 8-10 hour time weighted average (TWA) exposure.
(h) Isocyanates / Methylene diisocyanate	Use in resins for wood-based panel manufacture		
(i) Metal complex dyes (based on Copper, Chromium and Nickel)	Dyeing of textiles		Only permitted in the dyeing of wool, polyamide or blends of these fibres with man-made cellulose fibres (e.g. viscose).
(j) Silicon resin emulsions	Paints and varnishes	H412, H413	Only permitted if these substances amount to less than 2.0% w/w of the final paint product.
(k) Driers	Paints and varnishes	H301, H317, H373, H412, H413	Only permitted if the total content of drier compounds amounts to less than 0,10% w/w in the final paint product.
		H400, H410	Only applies to Cobalt driers in alkyd paints and only if such compounds amount to less than 0,05% w/w in the final paint product.
(l) Anti-skimming agents	Paints and varnishes	H317, H412, H413	Only permitted when it can be shown that anti-skimming agents with these classifications

			amount to less than 0,40% w/w in the final paint product.
(m) Mineral raw materials (including crystalline silica and leucophyllite minerals that contain crystalline silica)	Paints and varnishes	H373	Gerenal derogation with no conditions.
(n) Neutralising agents	Paints and varnishes	H311, H331, H400, H410, H411, H412, H413	Only permitted if quantities amount to less than: • 0,50% w/w in paint products • 1,0% w/w in varnish products
(o) Anti-corrosion pigments	Coatings applied to the surfaces of metal components	H410, H411, H412, H413	Only permitted if the following limits are respected in the coating product: • ≤ 0,50% w/w in products used for "verdigris" protection • ≤ 2,0% w/w in all product subcategories defined in the Paints Directive (2004/42/EC) • ≤ 8,0% w/w in product subcategories d), i) or j) as defined in the Paints Directive (2004/42/EC)..
(p) Barium, antimony and cobalt in pigments	Paints and varnishes		Shall only be permitted where laboratory testing (DIN 53770-1 or equivalent) of the pigment shows that the metal chromophore is bonded within a crystal lattice and is insoluble. The following metal containing pigments are derogated for use without the need for testing: • Barium sulfate • Antimony nickel within an insoluble TiO_2 lattice • Cobalt aluminate blue spinel • Cobalt chromite blue-green spinel
(q) General purpose surfactants	Paints and varnishes	H411, H412, H413	Only permitted if the concentration in the final paint or varnish product is less than: • 1,0% w/w in in white and light coloured products • 3,0% w/w in products of all other colours
(r) In-can preservatives	Paints and varnishes	H317, H331, H400, H410, H411, H412	Only permitted if: • present in quantities less than 0,060% w/w in the final paint or varnish product • active substances are approved for use under the Bicidal Products Regulation (EU) No. 528/2012 for the relevant product type. • Any H400 or H410 substances are classified as non-bioaccumulative.
(s) Dry film preservatives	Paints and varnishes		Only permitted when present in the final paint or varnish product at concentrations:

			• ≤ 0,10% w/w in paint or varnish products used in indoor furniture • ≤ 0,65% w/w in paint or varnish products used in outdoor furniture • active substances are approved for use under the Bicidal Products Regulation (No. 528/2012) for the relevant product type. • Any H400 or H410 substances are classified as non-bioaccumulative.
(t) Formaldehyde	When used as a resin or finishing agent in wood based panels	H301, H311, H314, H317, H331, H341, H350;	Only permitted when: • Workplace air concentrations where panels are produced can be shown to not exceed 0.2ppm TWA or 0,4ppm STEL, and • Formaldehyde emissions from the wood-based panel comply with the limits defined in criterion 3.4.
	When used as a finishing agent in leather or textiles		Only permitted when the free formaldehyde limit values stated in Table 4 and Table 6 for leather and textiles respectively are respected.
(u) Biocides	Any purpose with the exception of wood based preservatives		Only permitted to be used when: • The active substances are approved for use under the Biocidal Products Regulation (EU) No. 528/2012 for the relevant product type, and • Specifically used for preservation of hides or semi-finished leather during storage and transport (product type 9), or • Speciically used in leather, textiles or coated fabrics in furniture marketed for outdoor use (product type 9), or • Used as in-can or dry-film preservatives in primers, paints or varnishes used to coat wooden or metal surfaces (see derogations (r) and (s)).
(v) Total Volatile Organic Compounds	Adhesives in assembly of any furniture components or sub-components		Only permitted when one of the following conditions are met: • The total VOC content of the adhesive is ≤ 5,0% • The total quantity of VOC applied to the final product via adhesives is ≤ 4g • The final product complies with the requirements of criterion 8.3.
(w) N,N-Dimethylacetamide	Elastane and Acrylic textiles	H312, H319, H332, H360D	Only permitted as residue in textiles containing elastane and acrylic. In these cases a maximum residual content of 0,005% (w/w) in the final textile product is permitted and should be verified by testing by solvent extraction followed by GC-MS analysis.

*Colour removal in wastewater treatment shall be considered as taking place when eflfuents from the dyehouse meets the following spectral coefficients: (i) $7m^{-1}$ at 436nm, $5m^{-1}$ at 525nm and $3m^{-1}$ at 620nm.

Assessment and verification:

The applicant shall screen the presence of substances and mixtures that may be classified with the hazard statements or risk phrases reported above in the criterion. The applicant shall provide a declaration of compliance with criterion 2.1 for the product, any article of it or any homogenous part of it.

Applicants shall select the appropriate forms of verification. The main forms of verification are foreseen as follows:

- For articles manufactured according to a specific chemical formulation (e.g. latex and PUR foams): Safety Data Sheets shall be provided for the final article or for the substances and mixtures composing the final article above a cut-off limit of 0,10 % w/w.
- For homogenous parts and any associated treatments or impurities (e.g. plastic and metal parts): Safety Data Sheets shall be provided for the materials composing that part of the product and for substances and mixtures used in the formulation and treatment of the materials remaining in the final part above a cut-off limit of 0,10 % w/w.
- For chemical recipes used to impart a specific function to the product or to components of the product (e.g. glues, adhesives, flame retardants, biocides, plasticizers, dyes): Safety Data Sheets shall be provided for substances and mixtures used in the assembly of the final product or substances and mixtures applied to components during production, dyeing, printing and finishing processes that remain in the treated components.

The declaration shall include related documentation, such as declarations of compliance signed by the suppliers, on the non-classification of the substances, mixtures or materials with any of the hazard classes associated to the hazard statements or risk phrases referred in the list above in accordance with Regulation (EC) No 1272/2008, as far as this can be determined, as a minimum, from the information meeting the requirements listed in Annex VII to Regulation (EC) No 1907/2006.

The information provided shall relate to the forms or physical states of the substances or mixtures as used in the final product.

The following technical information shall be provided to support the declaration of classification or non-classification for each substance and mixture:

(i) For substances that have not been registered under Regulation (EC) No 1907/2006 or which do not yet have a harmonised CLP classification: information meeting the requirements listed in Annex VII to that Regulation;

(ii) For substances that have been registered under Regulation (EC) No 1907/2006 and which do not meet the requirements for CLP classification: information based on the REACH registration dossier confirming the non-classified status of the substance;

(iii) For substances that have a harmonised classification or are self-classified: Safety Data Sheets where available. If these are not available or the substance is self-classified then

information shall be provided relevant to the substances hazard classification according to Annex II to Regulation (EC) No 1907/2006;

(iv) In the case of mixtures: Safety Data Sheets where available. If these are not available then calculation of the mixture classification shall be provided according to the rules under Regulation (EC) No 1272/2008 together with information relevant to the mixtures hazard classification according to Annex II to Regulation (EC) No 1907/2006.

Safety Data Sheets (SDS) shall be completed in accordance with the guidance in Section 10, 11 and 12 of Annex II to Regulation (EC) 1907/2006 (Requirements for the Compilation of Safety Data Sheets). Incomplete SDS shall require supplementing with information from declarations by chemical suppliers.

Information on intrinsic properties of substances may be generated by means other than tests, for instance through the use of alternative methods such as in vitro methods, by quantitative structure activity models or by the use of grouping or read-across in accordance with Annex XI to Regulation (EC) No 1907/2006. The sharing of relevant data across the supply chain is strongly encouraged.

Where substances used are derogated, then the declaration shall specifically identify those derogated substances and provide supporting evidence showing how the derogation conditions are met.

2.2. Restrictions that apply to Substances of Very High Concern

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, present in mixtures, in an article or in any homogeneous part of the product in concentrations > 0,10 % by weight.

Assessment and verification:

Reference to the latest list of substances of very high concern shall be made on the date of application. The applicant shall provide a declaration of compliance with this criterion, together with related documentation, including declarations of compliance signed by the material suppliers and copies of relevant Safety Data Sheets for substances or mixtures in accordance with Annex II to Regulation (EC) No 1907/2006. Concentration limits shall be specified in the safety data sheets in accordance with Article 31 of Regulation (EC) No 1907/2006 for substances and mixtures.

CRITERION 3. WOOD AND WOOD-BASED MATERIALS

Criterion 3.1 Legality and origin of wood and wood-based materials

All wood and wood-based materials used in the furniture product must be compliant with the Regulation (EU) No. 995/2010[5] (EUTR - European Union Timber Regulation).

[5] Regulation (EU) No 995/2010 of the European Parliament and of the Council of 20 October 2010 laying down the obligations of operators who place timber and timber products on the market (OJ L 295, 12.11.2010, (p. 23-34).

For the purposes of the EU Ecolabel criteria, furniture products or components thereof that are classified under the following harmonized customs system codes:

- 9401 (Seats (excluding those of heading 9402), whether or not convertible into beds, and parts thereof);
- 9402 (Medical, surgical, dental or veterinary furniture; barbers' chairs & similar chairs, having rotating parts of the foregoing articles);
- 9403 10 (Metal furniture of a kind used in offices);
- 9403 80 00 (Furniture of other materials, including cane, osier, bamboo or similar materials) and
- 9403 90 (Furniture parts)

shall also meet the requirements of the Timber Regulation (EU) No 995/2010.

Assessment and Verification:

The applicants shall present the following means of proof:

- The demonstration of due diligence system(s) used by the company or companies responsible for the initial placement of wood and wood-based materials of products thereof on the EU market that meet the requirements of the EUTR; or
- A valid FLEGT license accompanying delivery invoices; or
- A valid CITES permit accompanying delivery invoices.

Criterion 3.2 Sustainable wood

All solid wood, wood chips and wood fibres shall be covered by valid chain of custody certificates issued by an independent third party certification scheme such as FSC, PEFC or equivalent.

A minimum of 70 % of the virgin solid wood, wood chips and wood fibres shall be covered by valid sustainable forest management certificates issued by an independent third party certification scheme such as FSC, PEFC or equivalent.

The remaining proportion of virgin wood and wood fibres shall be covered by a verification system which ensures that it is legally sourced and meets any other requirement of the certification scheme with respect to uncertified material.

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

Assessment and verification:

The applicant shall provide valid, independently certified chain of custody certificates and demonstrate that virgin solid wood, wood chips or wood fibres have been sourced from forests managed according to Sustainable Forestry Management principles and/or are from legal and controlled sources. FSC, PEFC or equivalent schemes shall be accepted as independent third party certification.

For any recycled wood content, the applicant shall declare, and provide declarations from any relevant suppliers, that state the recycled wood fibre content and that any pre-consumer

recycled wood material was not generated from logging or sawmill operations or from any processes within which it could have been reused. Recycled wood certified under FSC, PEFC or equivalent schemes shall be considered as compliant with the requirements for origin of recycled wood, wood chips or wood fibres.

Criterion 3.3 Restricted substances

In addition to the general conditions on hazardous substances set out in criterion 2, the following conditions shall specifically apply to any furniture components made of wood or wood-based materials:

a) Contaminants in recycled wood

Any recycled solid wood, wood chips or wood fibres used in the manufacture of wood-based panels included in the final furniture product must have been tested in accordance with the 2002 "EPF standard for delivery conditions of recycled wood"[6] and comply with the limits for contaminants as listed in Table 3.

Table 3

Restricted substances in recycled wood

Chemical contaminant	Limit value (mg/kg recycled wood)
Arsenic (As)	25
Cadmium (Cd)	50
Chromium (Cr)	25
Copper (Cu)	40
Lead (Pb)	90
Mercury (Hg)	25
Fluorine (F)	100
Chlorine (Cl)	1000
Pentachlorophenol (PCP)	5
Creosote (Benzo(a)pyrene)	0.5

Assessment and verification:

The applicant shall provide either:

- A declaration from the wood-based panel manufacturer that no recycled solid wood, wood chips or wood fibres were used in the wood-based panel, or
- A declaration that all recycled wood fibres used have been tested in accordance with the 2002 "EPF Standard conditions for the delivery of recycled wood", supported by appropriate test reports that demonstrate compliance of the recycled solid wood, wood chip or wood fibre samples with the limits specified in Table 3.

[6] EPF standard for delivery conditions of recycled wood, 24 October 2002 (http://www.europanels.org/upload/EPF-Standard-for-recycled-wood-use.pdf).

b) Wood preservatives

Treatment of wooden components with preservatives shall only be permitted in outdoor wooden furniture if it can be shown that the wood does not meet durability class 1 or 2 requirements according to EN 350.

In such cases, only wood preservatives whose active substance(s) are approved under the Regulation (EU) No. 528/2012 of the European Parliament and of the Council[7] (Biocidal Products Regulation) for the relevant product type shall be permitted.

Assessment and verification:

The applicant shall either:

- Provide a declaration of non-use of wood preservatives, or
- Provide a declaration stating that:

  (i) the furniture product is intended for outdoor use,

  (ii) the wood used in the furniture product does not meet the durability requirements of class 1 or 2 as per EN 350, and

  (iii) what active substances are present in the wood preservative(s) used, supported by its respective SDS and that these are approved for such use under Regulation (EU) No 528/2012.

  Active substances approved under Regulation (EU) No 528/2012 can be cross-checked against the list of BPR approved substances published and updated by the European Commision[8] and substances still approved under Annexes I and IA of Directive 98/8/EC of the European Parliament and of the Council[9].

c) Flame retardants

Flame retardants shall not be permitted in wood or wood-based materials unless specifically required for the furniture product to meet fire safety requirements in the country or countries where it is to be sold. Flame retardant substances shall comply with the general hazardous substance requirements set out in criterion 2.

Assessment and verification:

The applicant shall either:

- Provide a declaration of the non-use of flame retardants or,
- Provide a declaration stating what flame retardant substance(s) or formulation(s) have been used with wood and wood-based materials, supported by SDS from the flame retardant suppliers. The flame retarding substances shall be cross checked and not appear in the latest versions of REACH Annexes XIV and XVII and the ECHA Candidate List, and

[7] Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products (OJ L 167, 27.06.2012, p. 181-303).
[8] A list of approved active substances under the BPR (No. 528/2012) can be found here: http://ec.europa.eu/environment/chemicals/biocides/active-substances/approved-substances_en.htm
[9] Directive 98/8/EC of the European Parliament and of the Council of 16 February 1998 concerning the placing of biocidal products on the market (OJ L 123, 24.04.1998 (p. 1-63).

- Provide evidence that the furniture product, when treated with flame retardant substance(s) or formulation(s), meets the fire safety requirements in the country or countries where it is to be sold

d) Vinyl chloride monomer.

Plastic foils used in the coating of wood-based panels shall not be based on polymers that have been manufactured using vinyl chloride monomer (CAS No. 75 01 4).

The final plastic foil materials shall also comply with the requirements of criterion 2.

Assessment and verification:

The applicant shall provide a declaration stating that either:

- Plastic foils have not been used on wood-based panels in the product; or
- The type of the polymer used in plastic foils, supported by SDS and a declaration from the plastic foil supplier stating that the plastic foil was not manufactured using vinyl chloride monomer.

e) Heavy metals in paints and varnishes

Paints or varnishes used on wood or wood-based materials shall not contain additives based on cadmium, lead, chromium VI, mercury, arsenic, barium, selenium, antimony or cobalt, at concentrations exceeding 0,010% w/w for each individual metal in the final paint or varnish product. Derogation conditions may apply for barium, antimony or cobalt.

Assessment and verification:

The applicant shall declare that the paint or varnish does not contain the aforementioned heavy metals in concentrations > 0,010% w/w and provide the respective SDS from the suppliers of the coating substances used. The only exceptions that may apply are for barium, antimony and cobalt and only if the derogation conditions in entries (k) (for cobalt driers only) and (p) of Table 2 can be demonstrated to be met.

f) VOC content in paints and varnishes

Paints or varnishes used on wood or wood-based materials shall either:

- Have a total VOC content of less that 5% (in-can substance concentration) or
- Be greater than 5% VOC content but shown to be applied in quantities that amount to less than 35g/m^2 of the coated surface area, or
- Be greater than 5% VOC content but that the coated panel product complies with the VOC emission limits as specified in criterion 9.3.

Assessment and verification:

If the SDS states that the VOC content of the paint or varnish used is less than 5%, then no further verification shall be necessary. If the VOC content is higher, then the applicant will provide calculations that demonstrate the effective quantity of VOCs applied per m^2 of the

outer surface area of the final assembled furniture product. Guidance on these calculations is provided in Appendix I.

If the VOC content of the coating substance(s) is greater than 5% and no appropriate calculation is provided, then a test report demonstrating compliance with criterion 9.3 shall be provided.

g) Perfluorinated compounds in paints and varnishes

Paints and varnishes with long chain perfluoroalkyl sulfonates (≥C6) and/or perfluorocarboxylic acids (≥C8) shall not be used on wood or wood-based materials.

Assessment and verification*:*

The applicant shall provide a declaration from the paint or varnish supplier, supported bySDS, of the non-use of these substances for each production stage.

Criterion 3.4 Formaldehyde emissions

All wood-based panels used in the final furniture product, that use formaldehyde-based resins or finishing agents shall have formaldehyde emissions that are lower than 50% of the threshold value allowing them to be classified as E1 or, in the case of MDF panels, lower than 65% of the E1 threshold limit.

However, where unfaced panels are supplied to furniture manufacturers who subsequently coat, overlay or veneer the panels, the original unfaced panels only need to comply with being below the E1 threshold limit, so long as proof is provided that the final coated, overlaid or veneered panel that will be used in the furniture product is compliant with the more stringent 50% of E1 threshold limit (or 65% of E1 threshold limit in the case of MDF panels).

Coated panels imported from outside the EU shall be considered as meeting the requirements established by this criterion if they are certified as F-3 star or F-4 star according to the Japanese Industrial Standards A 5905 or 5908[10] or certified as CARB phase II compliant.

Assessment and verification*:*

In cases where E1 panels are subsequently coated, overlaid or veneered by the furniture manufacturer, the applicant shall provide:

- A declaration from the wood-based panel supplier, stating that unfaced panels are E1 compliant, supported by test reports carried out according to either EN 717-1, EN 717-2 or EN 120, and
- Test results according to either EN 717-1, EN 717-2 or EN 120 demonstrating that formaldehyde emissions from panels that have been coated, overlaid or veneered by the furniture manufacturer comply with emissions limits of 50% of E1 or, in the case of MDF panels, 65% of E1.

[10] "Japanese Industrial Standard (JIS) A 5905:2003 – Fibreboards" or "JIS A 5908:2003 – Particleboards" sets the formaldehyde emission limits for 3-star and 4-star compliance as measured by JIS A 1460:2001 - Building boards: Determination of formaldehyde emission – Desiccator method

In the case of coated, overlaid or veneered panels that are supplied to the furniture manufacturer and are already compliant with 50% of E1 or 65% of E1 for MDF panels, the applicant shall provide:

- A declaration from the coated, overlaid or veneered panel supplier, stating that the panel is compliant with 50% or 65% of E1 emission limits, supported by test reports carried out according to either EN 717-1, EN 717-2 or EN 120, and,
- A declaration from the applicant stating that no further formaldehyde-based surface treatment was applied to supplied panels and that the panels were not altered in any other way that would potentially increase formaldehyde emissions.

In the case of CARB compliant panels, the applicant shall provide a declaration from the panel manufacturer, supported by third party verified test results according to ASTM E1333 or ASTM D6007 that show panel compliance with the formaldehyde Phase II emission limits defined in the California Composite Wood Products Regulation 93120[11]. Optionally, the panels may be labelled in accordance with Section 93120.3(e) and containing the following details:

  - manufacturer's name,
  - product lot number or batch produced, and
  - CARB assigned number for the third party certifier (this part is not required if the products were made using no-added formaldehyde or certain ultra-low emitting formaldehyde-based resins).

In the case of any panels certified as F 3-star or F 4-star rated as per JIS A 5905 (fibreboard) or JIS A 5908:2003 (particleboard and plywood), the applicant shall provide a declaration of compliance from the panel supplier, supported by third party verified test data according to the JIS A 1460 desicator method.

CRITERION 4. PLASTIC PARTS

The requirements set out in the present criterion only apply to rigid plastic components that are made entirely of plastic and not to plastic foils, thermosetting resins or materials used in upholstery, which are covered by criteria 3.3d) (plastic foils), 3.4 (thermosetting resins), 6.2 (textile coverings), 6.3 (coated fabrics), 7.1 (latex foam), and 7.2 (polyurethane foam).

Criterion 4.1 Marking of plastic components

Plastic parts with a weight ≥50 g shall be visibly marked in accordance with the requirements of EN ISO 11469 or EN ISO 1043, so that polymeric materials can be identified to ensure they are able to be recycled, recovered or disposed of in the correct manner at end-of-life.

***Assessment and verification*:**

The applicant shall demonstrate the markings on all plastic components ≥50 g.

[11] Regulation 93120 "Airborne toxic control measure to reduce formaldehyde emissions from composite wood products" California Code of Regulations.

The ISO 11469 marking scheme may be used for single polymers based on polyethylene terephthalate (PET), high density polyethylene (HD-PE), low density polyethylene (LD-PE), Polypropylene (PP) or Polystyrene (PS), the ISO 11469 marking scheme may be used.

For any other single polymers or co-polymers, the marking scheme defined in EN ISO 1043 shall be used.

Criterion 4.2 Restricted substances

In addition to the general conditions on hazardous substances set out in criterion 2, the following conditions shall specifically apply to any furniture components made of plastic:

a) Heavy metals in plastic additives

No additives shall be used in plastics that contain cadmium, chromium VI, lead, mercury, tin or their compounds either in the bulk plastic material or in any surface layer.

Assessment and verification:

The applicant shall provide a declaration from the supplier of the plastic component(s) that no additives containing cadmium, chromium VI, lead, mercury, tin or their compounds have been used in the manufacture of the plastic component(s) as well as relevant SDS that list any potentially hazardous additives used.

b) Vinyl chloride monomer

Plastic components shall not have been manufactured using vinyl chloride monomer (CAS No. 75 01 4).

Assessment and verification:

The applicant shall provide a declaration from the plastic supplier stating what polymer type or types were used in the plastic component(s) and that they have not been manufactured from vinyl chloride monomer. Alternatively, proof of marking of plastic components may also be accepted as verification.

c) Flame retardants

Flame retardants shall not be permitted in plastic materials unless specifically required for the furniture product to meet fire safety requirements in the country or countries where it is to be sold. Flame retardant substances shall comply with the general hazardous substance requirements established in criterion 2.

Assessment and verification:

The applicant shall provide either:

- A declaration of non-use of flame retardants or,
- A declaration stating what flame retardant substance(s) or formulation(s) have been used with plastic components, supported by SDS from the flame retardant suppliers. The flame retarding substances shall be cross checked with the latest versions of REACH Annexes XIV and XVII and the Candidate List.

d) Plasticisers

Any plasticisers used in solid plastic components shall be declared and shall comply with the general hazardous substances requirements established in criterion 2

Assessment and verification:

The applicant shall provide either:

- A declaration from the manufacturer of the plastic components stating that no plasticisers have been used or,
- A declaration from the plastic component manufacturer stating which plasticisers have been used, together with their chemical names and CAS numbers in relevant SDS or similar documentation. The CAS numbers shall be cross-checked with the latest versions of REACH Annexes XIV and XVII and the ECHA Candidate List.

Criterion 4.3 Recycled plastic content

Where the final furniture product (not including packaging) consists of at least 20% w/w by weight plastic parts, the average recycled content of plastic parts in the final product (not including packaging) shall be at least 30% w/w.

Recycled plastic material may come from:

- post-consumer waste polyethylene (high or low density, HD-PE or LD-PE), polypropylene (PP) , polyethylene terephthalate (PET) or polystyrene (PS) , and/or
- pre-consumer plastic wastes that could not be reused within the same process that generated them and that shall be declared as compliant with criterion 4.2.

Assessment and verification:

The applicant shall provide a declaration from the plastic manufacturer(s) stating the average recycled content. Where plastic components come from different sources or manufacturers, the average recycled content shall be stated for each plastic source and the overall average recycled plastic content in the product shall be calculated.

Deliveries of post-consumer plastic recyclates shall be accompanied by batch information according to the conditions set out in EN 15343.

Any deliveries of pre-consumer recycled plastic to manufacturers should be accompanied by a declaration stating compliance with the conditions set out in criterion 4.2.

In the absence of such a declaration, the Competent Body may consider relevant test results from analysis of representative batches of pre-consumer plastic recyclates that demonstrate compliance with criterion 4.2.

Where pre-consumer recycled material streams consist of only a small number of different types of plastic off-cuts, the SDS of those plastics may be accepted as suitable proof of compliance with criterion 4.2.

CRITERION 5. METALS

This criterion refers to any metal components used in the furniture product and includes small components such as nuts, bolts, nails, screws, hinges, brackets, runners and wheels.

Criterion 5.1 Restricted substances

In addition to the general requirements for hazardous substances stated in criterion 2, the conditions listed below shall apply for metal components in the furniture product.

a) Electroplating restrictions

Chromium VI or cadmium compounds shall not be used for electroplating operations of any metal components.

Only components subject to heavy phsyical wear (nuts, bolts, nails, screws, hinges, brackets, runners, gas lifts and wheels) or components not subject to pronlonged skin contact may be electroplated.

Assessment and verification:

The applicant shall provide a declaration from the supplier of the metal component(s) stating that no plating treatments involving chromium VI or cadmium compounds have been used. Where the furniture manufacturer has applied additional surface treatments to the metal component(s) supplied, they shall provide the same declaration.

b) Heavy metals in paints and primers

Paints or varnishes used on wood or wood-based materials shall not contain additives based on cadmium, lead, chromium VI, mercury, arsenic, barium, selenium, antimony or cobalt, at concentrations exceeding 0,010% w/w for each individual metal in the final paint or varnish product. Derogation conditions may apply for barium, antimony or cobalt.

Assessment and verification:

The applicant shall declare that the paint or varnish does not contain the aforementioned heavy metals in concentrations > 0,010% w/w and provide the respective SDS from the suppliers of the coating substances used. The only exceptions that may apply are for barium, antimony and cobalt and only if the derogation conditions in entries (k) (for cobalt driers only) and (p) of Table 2 can be demonstrated to be met.

c) VOC content in paints and primers

Any paints or primers used on metal components shall either:

- Have a total VOC content of less that 5% (in-can substance), or
- Have a total VOC content higher than 5%, but be shown by calculations that the total amount of VOC applied contributes to less than $35 g/m^2$ of coated surface area, or

- Have a total VOC content higher than 5%, only if the coated panel product complies with the VOC emission limits established in Criterion 9.3.

Assessment and verification:

The applicant shall provide the SDS or other relevant documentation from the paint and/or primer supplier that states the total VOC content of the in-can product.

If the total VOC content is less than 5%, no further verification shall be necessary.

If the VOC content is higher than 5%, then the applicant shall either:

- provide calculations according to the guidance provided in Appendix I, that demonstrate that the effective quantity of VOCs applied is less than $35 g/m^2$ of coated area, or
- provide a test report demonstrating compliance with criterion 9.3.

d) Perfluorinated compounds in paints and primers

Paints or primers with long chain perfluoroalkyl sulfonates (≥C6) and perfluorocarboxylicacids (≥C8) shall not be used.

Assessment and verification*:*

The applicant shall provide a declaration from the paint or primer supplier, supported by SDS, of the non-use of these substances for each production stage.

CRITERION 6. UPHOLSTERY COVERING MATERIALS

Criterion 6.1 Leather

Requirements a) and b) shall apply regardless of the leather content in the final furniture product. Requirement c) shall only apply when leather in the final product accounts for more than 1,0 % w/w of the total furniture product (excluding packaging).

a) Physical requirements.

The physical requirements for furniture leather shall meet the characteristics specified in Tables 1 and 2 of EN 13336.

Assessment and verification:

The applicant shall provide a declaration from the leather supplier, supported by relevant test reports, that the leather meets the physical requirements for furniture leather specified in Tables 1 and 2 of EN 13336. The applicant shall declare that only EN 13336 compliant leather has been used in the furniture upholstery.

b) Restricted substances in furniture leather

In addition to the general conditions on hazardous substances set out in criterion 2, the following conditions listed in Table 4 shall specifically apply to any furniture leather:

Table 4

Testing requirements for hazardous substances in final leather covering material

Chemical	Test Method	Limits (mg/kg)
Restricted arylamines from cleavage of azodyes*	EN ISO 17234-1	≤30 for each amine*
Chromium VI	EN ISO 17075	< 3 **
Free formaldehyde	EN ISO 17226-1	≤ 75
Extractable heavy metals	EN ISO 17072-1	Cr ≤200; Sb ≤30; As ≤1.0; Cd ≤0.1, Co ≤4.0, Cu ≤50 Pb ≤1.0, Ni ≤1.0 and Hg ≤0.02
Chlorophenols	EN ISO 17070	Pentachlorophenol ≤ 1 Tetrachlorophenol ≤ 1
Alkylphenols	EN ISO DIS 18218-1	Nonylphenol, mixed isomers (CAS 25154-52-3); 4-Nonylphenol; (CAS 104-40-5) 4-Nonylphenol, branched; (CAS 84852-15-3) Octylphenol; (CAS 27193-28-8) 4-Octylphenol; (CAS 1806-26-4) 4-tert-Octylphenol; (CAS 140-66-9) Alkylphenolethoxylates & derivatives: Polyoxyethylated octyl phenol; (CAS 9002-93-1) Polyoxyethylated nonyl phenol;(CAS 9002-93-1) Polyoxyethylated p-nonyl phenol; (CAS 9002-93-1) **Sum Total limit = ≤ 25mg/kg**
Chloralkanes	EN ISO DIS 18219	C10-C13 (SCCP) chloralkanes - not detectable C14-C17 (MCCP) chloralkanes ≤ 1000;

*A total of 22 arylamines listed in Entry 43 of Annex XVII of REACH plus two other compounds are listed also in Table 17 of Appendix II. Not detectable is considered as values lower than 30mg/kg according to the EN ISO 17234-1 method.

** The detection limit for the EN ISO 17075 is generally assumed to be 3 mg/kg.

Assessment and verification:

The furniture manufacturer shall provide a declaration that the furniture leather complies with the above limits, supported by results from the relevant referred test methods.

c) Restricted substances in the leather production process

If leather accounts for more than 1,0 % w/w of the final furniture product, it shall be demonstrated that the leather production process meets the requirements on restricted substances as described in Appendix III

Assessment and verification:

Compliance with the applicable assessment and verification conditions laid out in Appendix III shall be demonstrated.

Criterion 6.2. Textile coverings

This requirement applies to textile fibres and woven fabrics used in furniture upholstery as covering materials only.

Requirements a) and b) must be complied, regardless the textile content in the final furniture product. Where textile content is higher than 1,0% w/w of the final product weight (excluding packaging), requirements a), b) and c) shall apply.

a) Physical requirements

The final textile covering materials used in the furniture product shall comply with the physical requirements set out in Table 5.

Table 5

Physical requirements for final textile covering materials in furniture upholstery

Test factor	Method	Removable and washable coverings	Non-removable and washable coverings
Dimensional changes during washing and drying	Domestic washing: ISO 105-C06 Commercial washing: ISO 15797 + ISO 105-C06	+/- 3.0% for woven fabrics +/- 6.0% for non-woven fabrics	N/A
Colour fastness to washing	Domestic washing: ISO 105-C06 Commercial washing: ISO 15797 + ISO 105-C06	≥ level 3-4 for colour change ≥ level 3-4 for staining	N/A
Colour fastness to wet rubbing*	ISO 105 X12	≥ level 2-3	≥ level 2-3
Colour fastness to dry rubbing*	ISO 105 X12	≥ level 4	≥ level 4
Colour fastness to light	ISO 105 B02	≥ level 5**	≥ level 5**
Fabric resistance to pilling and abrasion	Knitted and non-woven products: ISO 12945-1 Woven fabrics: ISO 12945-2	ISO 12945-1 result >3 ISO 12945-2 result >3	ISO 12945-1 result >3 ISO 12945-2 result >3

* does not apply to white products or products that are neither dyed nor printed

** A level of 4 is nevertheless allowed when furniture covering fabrics are both light coloured (standard depth < 1/12) and made of more than 20 % wool or other keratin fibres, or more than 20 % linen or other bast fibres.

Assessment and verification

The applicant shall provide test reports that demonstrate compliance with the minimum requirements specified in Table 5.

b) Restricted substances in textile coverings

In addition to the general conditions on hazardous substances set out in criterion 2, the following conditions shall specifically apply to any textile coverings used in the furniture product.

Table 6

Testing requirements for hazardous substances in textile coverings

Chemical	Test Method	Limits (mg/kg)
Restricted arylamines* from cleavage of azodyes	EN ISO 14362-1 and 14362-3	< 30 per arylamine
Free formaldehyde	EN ISO 14184-1	≤ 75 **
Extractable heavy metals	EN ISO 105-E04	As ≤ 1.0; Sb ≤ 30.0; Cr ≤ 2.0; Ni ≤ 1.0; Cd ≤ 0.1; Co ≤ 4.0; Pb ≤ 1.0; Cu ≤ 50.0; Hg ≤ 0.02;
Alkylphenols	Solvent extraction followed by LC-MS	Nonylphenol, mixed isomers (CAS 25154-52-3); 4-Nonylphenol (CAS 104-40-5) 4-Nonylphenol, branched (CAS 84852-15-3) Octylphenol (CAS 27193-28-8) 4-Octylphenol (CAS 1806-26-4) 4-tert-Octylphenol (CAS 140-66-9) **Alkylphenolethoxylates & derivatives:** Polyoxyethylated octyl phenol (CAS 9002-93-1) Polyoxyethylated nonyl phenol(CAS 9002-93-1) Polyoxyethylated p-nonyl phenol (CAS 9002-93-1) **Sum Total limit ≤ 25mg/kg**
Residual pesticides in cotton-based textile coverings	US EPA 8081B† US EPA 8151A US EPA 8141B US EPA 8270D	Alachlor, aldicarb, aldrin, campheclor (toxaphene), captafol, chlordane, 2,4,5-T, chlordimeform, chlorobenzilate, cypermethrin, DDT, dieldrin, dinoseb and its salts, endosulfan, endrin, glyphosulfate, heptachlor, hexachlorobenzene, hexachlorocyclohexane (total isomers), methamidophos, methyl-o-dematon, methylparathion, monocrotophos, neonicotinoids (clothianidine, imidacloprid, thiametoxam), parathion, phosphamidon, pentachlorophenol, thiofanex, triafanex, triazophos **Combined total ≤ 0,5 mg/kg**

*A total of 22 arylamines listed in Entry 43 of Annex XVII of REACH plus two other compounds are listed also in Table 17 of Appendix II. Not detectable is considered as values lower than 30mg/kg according to the EN ISO 14362-1 method.

**Only applies to textile fabrics which have been treated with an "easy care" finish.

† US EPA 8081 B (organo-chlorine pesticides, with ultrasonic or Soxhlet extraction and apolar solvents (iso-octane or hexane)); US EPA 8151 A (chlorinated herbicides, using methanol); US EPA 8141 B (organophosphorus compounds) and US EPA 8270 D (semi-volatile organic compounds).

Assessment and verification:

The furniture manufacturer shall provide a declaration that the furniture textile complies with the above limits, supported by results from the relevant referred test methods.

In the case of cotton, material that is certified as organically produced in accordance with the requirements of Regulation (EC) No 834/2007[12,] the US National Organic Programme (NOP) or equivalent legal obligations set by trade partners of the EU, may be exempted from testing.

Cotton that is certified as grown according to IPM (integrated pest management) principles that specifically exclude the above listed pesticides, or where declarations of non-use are obtained from farmers and/or farmer producer groups that are verified by site visits and tests carried out by control bodies accredited by either national governments or recognised organic or IPM certification schemes, may be exempted from pesticide testing.

[12] Council Regulation (EC) No 834/2007of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91 (OJ L 189, 20.7.2007, p. 1)

c) Restricted substances in the textile covering production process

If the textile covering accounts for more than 1,0 % w/w of the final furniture product, it shall be demonstrated that the textile production process meets the requirements on restricted substances as described in Appendix III.

Assessment and verification:

The applicable assessment and verification conditions laid out in Appendix III shall be complied with.

Criterion 6.3. Coated fabrics

a) Physical requirements

The coated fabric material shall comply with the physical properties listed in Table 7.

Table 7

Physical requirements for coated fabric materials

Property	Method	Requirement
Tensile strength	ISO 1421	CH ≥ 35daN and TR ≥ 20daN
Tear resistance of plastic film and sheeting by the trouser tear method	ISO 13937/2	CH ≥ 2,5daN and TR ≥2daN
Colour fastness to artificial weathering – Xenon arc fading lamp test	EN ISO 105-B02	Indoor use ≥ 6 Outdoor use ≥ 7
Textiles – abrasion resistance by the Martindale method	ISO 5470/2	≥ 75,000
Determination of coating adhesion	EN 2411	CH ≥ 1,5daN and TR ≥ 1,5daN

Assessment and verification:

The applicant shall provide a declaration from the coated fabric manufacturer stating that the coated fabric material meets all the required physical properties, supported bytests carried out according to the methods referred to in Table 7.

b) Restricted substances

In addition to the general conditions on hazardous substances set out in criterion 2, the following conditions shall specifically apply to any coated fabrics used in the furniture product:

- Compliance with the hazardous substance requirements stated in Appendix IV shall be demonstrated.
- Coated fabrics shall not have been manufactured using vinyl chloride monomer (CAS No. 75 01 4).

Assessment and verification:

The applicant shall provide a declaration from the coated fabric supplier stating what polymer type or types were used in the plastic component(s) and that they have not been manufactured

from vinyl chloride monomer. Alternatively, proof of marking of plastic components may also be accepted.

c) Restricted substances in the coated fabric production process

If coated fabrics account for more than 1,0 % of the total furniture product weight, then the substances and mixtures or preparations used in the coated fabric production process shall comply with the restriction substance criteria stated in **Error! Reference source not found.** that are applicable to coated fabrics.

Assessment and verification

The applicable assessment and verification conditions laid out in Appendix II shall be complied.

CRITERION 7. UPHOLSTERY PADDING MATERIALS

Criterion 7.1. Latex foam

Where latex foam accounts for at least 5,0% of total padding material (w/w) then sub criteria a) and b) shall apply.

a) Restricted substances

The concentrations in the latex foam of the substances listed below shall not exceed the values shown in Table 8.

Table 8

Restricted substances in latex foams used in furniture upholstery

Group of substances	Substance	Limit value (ppm)	Assessment and verification conditions
Chlorophenols	mono- and di-chlorinated phenols (salts and esters)	1	A
	Other chlorophenols	0.1	A
Heavy metal	As (Arsenic)	0.5	B
	Cd (Cadmium)	0.1	B
	Co (Cobalt)	0.5	B
	Cr (Chromium), total	1	B
	Cu (Copper)	2	B
	Hg (Mercury)	0.02	B
	Ni (Nickel)	1	B
	Pb (Lead)	0.5	B
	Sb (Antimony)	0.5	B
Pesticides*	Aldrin	0.04	C
	o,p-DDE	0.04	C
	p,p-DDE	0.04	C
	o,p-DDD	0.04	C
	p,p-DDD	0.04	C
	o,p-DDT	0.04	C

	p,p-DDT	0.04	C
	Diazinone	0.04	C
	Dichlorfenthion	0.04	C
	Dichlorvos	0.04	C
	Dieldrin	0.04	C
	Endrin	0.04	C
	Heptachlor	0.04	C
	Heptachlorepoxide	0.04	C
	Hexachlorobenzene	0.04	C
	Hexachlorocyclohexane	0.04	C
	α-Hexachlorocyclohexane	0.04	C
	β-Hexachlorcyclohexane	0.04	C
	γ-Hexachlorocyclohexane (Lindane)	0.04	C
	δ-Hexachlorocyclohexane	0.04	C
	Malathion	0.04	C
	Methoxichlor	0.04	C
	Mirex	0.04	C
	Parathion-ethyl	0.04	C
	Parathion-methyl	0.04	C
Other specific substances that are restricted	Butadiene	1	D
* Only for foams composed of natural latex for at least 20 % by weight.			

Assessment and verification:

A. For clorophenols the applicant shall provide a report presenting the results of the following test procedure. 5 g of sample shall be milled and clorophenols shall be extracted in the form of phenol (PCP), sodium salt (SPP) or esters. The extracts shall be analysed by means of gas chromatography (GC). Detection shall be made with mass spectrometer or electron capture detector (ECD).

B. For heavy metals the applicant shall provide a report presenting the results of the following test procedure. Milled sample material is eluted in accordance with DIN 38414-S4 or equivalent in a ratio of 1:10. The resultant filtrate shall be passed through a 0.45 µm membrane filter (if necessary by pressure filtration). The solution obtained shall be examined for the content of heavy metals by inductively coupled plasma optical emission spectrometry (ICP-OES), also known as inductively coupled plasma atomic emission spectrometry (ICP-AES), or by atomic absorption spectrometry using a hydride or cold vapour process.

C. For pesticides the applicant shall provide a report presenting the results of the following test procedure: 2 g of sample is extracted in an ultrasonic bath with a hexane/dichloromethane mixture (85/15). The extract is cleaned up by acetonitrile agitation or by adsorption chromatography over florisil. Measurement and quantification are determined by gas chromatography with detection on an electron capture detector or by coupled gas chromatography/mass spectrometry. The testing on pesticides is requested for latex foams with a content of at least 20 % natural latex.

D. For butadiene the applicant shall provide a report presenting the results of the following test procedure. Following milling and weighing of the latex foam, headspace sampling shall be performed. Butadiene content shall be determined by gas chromatography with detection by flame ionisation.

b) 24 hour VOC emissions

Chamber concentrations of the substances reported below shall not exceed the following values after a period of 24 hours shown in Table 9.

Table 9

24-hour VOC emission limits for latex foams

Substance	**Limit value (mg/m³)**
1,1,1 – trichloroethane	0.2
4-Phenylcyclohexene	0.02
Carbon Disulphide	0.02
Formaldehyde	0.005
Nitrosamines*	0.0005
Styrene	0.01
Tetrachloroethylene	0.15
Toluene	0.1
Trichlorethylene	0.05
Vinyl chloride	0.0001
Vinyl cyclohexene	0.002
Aromatic hydrocarbons (total)	0.3
VOCs (total)	0.5
* N-nitrosodimethylamine (NDMA), N-nitrosodiethylamine (NDEA), N-nitrosomethylethylamine (NMEA), N-nitrosodi-i-propylamine (NDIPA), N-nitrosodi-n- propylamine (NDPA), N-nitrosodi-n-butylamine (NDBA), N-nitrosopyrrolidinone (NPYR), N-nitrosopiperidine (NPIP), N-nitrosomorpholine (NMOR).	

Assessment and verification:

The applicant shall provide a report presenting the results of chamber test analysis carried out by an accredited laboratory in accordance with ISO 16000-9.

The wrapped sample shall be stored at room temperature at least for 24 hours. After this period the sample shall be unwrapped and immediately transferred into the test chamber. The sample shall be placed on a sample holder, which allows air access from all sides. The climatic factors shall be adjusted according to ISO 16000-9. For comparison of test results, the area specific ventilation rate (q=n/l) shall be 1. The ventilation rate shall be between 0.5 and 1. The air sampling shall be done 24±1 h after loading of the chamber during 1 hour on DNPH cartridges for the analysis of formaldehyde and other aldehydes and on Tenax TA for the analysis of other volatile organic compounds. Sampling duration for other compounds may be longer but shall be completed before 30 hours.

The analysis of formaldehyde and other aldehydes shall comply with the standard ISO 16000-3. Unless specified differently, the analysis of other volatile organic compounds shall comply with the standard ISO 16000-6.

Testing following the standard CEN/TS 16516 shall be considered equivalent to those of the ISO 16000 series of standards.

The analysis of nitrosamines shall be done by means of gas chromatography in combination with a thermal energy analysis detector (GC-TEA), in accordance with the BGI 505-23 method (formerly: ZH 1/120.23) or equivalent.

Criterion 7.2. Polyurethane (PUR) foam

a) Restricted substances

The concentrations in the PUR foam of the substances listed below shall not exceed the values shown in Table 10.

Table 10

List of restricted substances in PUR foams

Group of substances	Substance (acronym, CAS number, element symbol)	Limit value	Method
Biocides		Not added intentionally	A
Flame retardants		Not added intentionally	A
Heavy Metals	As (Arsenic)	0.2 ppm	B
	Cd (Cadmium)	0.1 ppm	B
	Co (Cobalt)	0.5 ppm	B
	Cr (Chromium), total	1.0 ppm	B
	Cr VI (Chromium VI)	0.01 ppm	B
	Cu (Copper)	2.0 ppm	B
	Hg (Mercury)	0.02 ppm	B
	Ni (Nickel)	1.0 ppm	B
	Pb (Lead)	0.2 ppm	B
	Sb (Antimony)	0.5 ppm	B
	Se (Selenium)	0.5 ppm	B
Plasticizers	Di-iso-nonylphthalate (DINP, 28553-12-0)	0.01 % w/w (sum)	C
	Di-n-octylphthalate (DNOP, 117-84-0)		
	Di (2-ethylhexyl)-phthalate (DEHP, 117-81-7)		
	Di-iso-decylphthalate (DIDP, 26761-40-0)		
	Butylbenzylphthalate (BBP, 85-68-7)		
	Dibutylphthalate (DBP, 84-74-2)		
	Phthalates	Not added intentionally	A
TDA and MDA	2,4 Toluenediamine (2,4-TDA, 95-80-7)	5.0 ppm	D
	4,4'−Diaminodiphenylmethane (4,4'−MDA, 101-77-9)	5.0 ppm	D
Tinorganic substances	Tributyltin (TBT)	50 ppb	E
	Dibutyltin (DBT)	100 ppb	E
	Monobutyltin (MBT)	100 ppb	E
	Tetrabutyltin (TeBT)	-	-
	Monooctyltin (MOT)	-	-
	Dioctyltin (DOT)	-	-
	Tricyclohexyltin (TcyT)	-	-
	Triphenyltin (TPhT)	-	-
	Sum	500 ppb	E
Other specific substances that are restricted	Chlorinated or brominated dioxins or furans	Not added intentionally	A
	Chlorinated hydrocarbons: (1,1,2,2-Tetrachloroethane, Pentachloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethylene)	Not added intentionally	A
	Chlorinated phenols (PCP, TeCP, 87-86-5)	Not added intentionally	A
	Hexachlorocyclohexane (58-89-9)	Not added intentionally	A
	Monomethyldibromo–Diphenylmethane (99688-47-8)	Not added intentionally	A

	Monomethyldichloro-Diphenylmethane (81161-70-8)	Not added intentionally	A
	Nitrites	Not added intentionally	A
	Polybrominated Biphenyls (PBB, 59536-65-1)	Not added intentionally	A
	Pentabromodiphenyl Ether (PeBDE, 32534-81-9)	Not added intentionally	A
	Octabromodiphenyl Ether (OBDE, 32536-52-0)	Not added intentionally	A
	Polychlorinated Biphenyls (PCB, 1336-36-3)	Not added intentionally	A
	Polychlorinated Terphenyls (PCT, 61788-33-8)	Not added intentionally	A
	Tris(2,3-dibromopropyl) phosphate (TRIS, 126-72-7)	Not added intentionally	A
	Trimethylphosphate (512-56-1)	Not added intentionally	A
	Tris-(aziridinyl)-phosphinoxide (TEPA, 545-55-1)	Not added intentionally	A
	Tris(2-chloroethyl)-phosphate (TCEP, 115-96-8)	Not added intentionally	A
	Dimethyl methylphosphonate (DMMP, 756-79-6)	Not added intentionally	A

Assessment and verification:

For methods B, C, D and E where analysis is required, 6 composite samples shall be taken from up to a maximum depth of 2 cm from the surface faces of the material sent to the relevant accredited laboratory. Where testing is required, the applicant shall provide the test results and demonstrating compliance with the limits in Table 10.

A. For biocides, phthalates and other specific substances that are restricted the applicant shall provide a declaration supported by declarations from manufacturers of the foam confirming that the listed substances have not been added intentionally to the foam formulation.

B. For heavy metals the applicant shall provide a report presenting the results of the following test procedure. Milled sample material is eluted in accordance with DIN 38414-S4 or equivalent in a ratio of 1:10. The resultant filtrate shall be passed through a 0.45 μm membrane filter (if necessary by pressure filtration). The solution obtained shall be examined for the content of heavy metals by atomic emission spectrometry with inductively coupled plasma (ICP-AES or ICP-OES) or by atomic absorption spectrometry using a hydride or cold vapour process.

C. For the total amount of plasticizers the applicant shall provide a report presenting the results of the following test procedure. The sample shall be a composite of 6 pieces to be taken from beneath each samples face (to a maximum of 2 cm from the surface). Extraction shall be performed with dichloromethane using validated method and followed by analysis with gas chromatography–mass spectrometry (GC/MS) or high-performance liquid chromatography (HPLC/UV).

D. For TDA and MDA the applicant shall provide a report presenting the results of the following test procedure. The sample shall be a composite of 6 pieces to be taken from beneath each samples face (to a maximum of 2 cm from the surface). Extraction shall be performed with 1 % aqueous acetic acid solution. Four repeat extractions of the same foam sample shall be performed maintaining the sample weight to volume ratio of 1:5 in each case. The extracts shall be combined, made up to a known volume, filtered and analysed by high-performance liquid chromatography (HPLC-UV) or HPLC-MS. If HPLC-UV is performed and interference is suspected, reanalysis with high performance liquid chromatography–mass spectrometry (HPLC-MS) shall be performed.

E. For tinorganic substances the applicant shall provide a report presenting the results of the following test procedure. The sample shall be a composite of 6 pieces to be taken from beneath each sample face (to a maximum of 2 cm from the surface). Extraction shall be performed for 1 hour in an ultrasonic bath at room temperature. The extracting agent shall be a mixture composed as it follows: 1750 ml methanol + 300 ml acetic acid + 250 ml buffer (pH 4.5). The buffer shall be a solution of 164 g of sodium acetate in 1200 ml of water and 165 ml acetic acid, to be diluted with water to a volume of 2000 ml. After extraction the alkyl tin species shall be derivatized by adding sodium tetraethylborate solution in tetrahydrofuran (THF). The derivative shall be extracted with n-hexane and the sample shall be submitted to a second extraction procedure. Both hexane extracts shall be combined and further used to determine the organotin compounds by gas chromatography with mass selective detection in SIM modus.

b) 72 hour VOC emissions

Chamber concentrations of the substances reported below shall not exceed the following values after a period of 72 hours shown in Table 11.

Table 11

72-hour VOC emission limits for PUR foams

Substance (CAS number)	Limit value (mg/m³)
Formaldehyde (50-00-0)	0.005
Toluene (108-88-3)	0.1
Styrene (100-42-5)	0.005
Each detectable compound classified as categories C1A or C1B according to the Regulation (EC) No 1272/2008 of the European Parliament and of the Council	0.005
Sum of all detectable compound classified as categories C1A or C1B according to Regulation (EC) No 1272/2008	0.04
Aromatic hydrocarbons	0.5
VOCs (total)	0.5

Assessment and verification:

The applicant shall provide test results from an accredited laboratory of VOC emissions from PUR foam samples that show compliance with the limits stated in Table 11. The test sample/chamber combination shall be either:

- 1 sample of 25x20x15 cm dimensions is placed in a 0.5m^3 test chamber, or
- 2 samples of 25x20x15 cm dimensions are placed in a 1.0m^3 test chamber.

The foam sample shall be placed on the bottom of an emission test chamber and conditioned for 3 days at 23°C and 50 % relative humidity, applying an air exchange rate n of 0.5 per hour and a chamber loading L of 0.4 m^2/m^3 (= total exposed surface of sample in relation to chamber dimensions without sealing edges and back) in accordance with ISO 16000-9 and ISO 16000-11.

Sampling shall be done 72 ± 2 h after loading of the chamber during 1 hour via Tenax TA and DNPH cartridges for VOC and formaldehyde analysis respectively. The emissions of VOC are being trapped on Tenax TA sorbent tubes and subsequently analysed by means of thermo-desorption-GC-MS in accordance to ISO 16000-6.

Results are semi-quantitatively expressed as toluene equivalents. All specified individual components are reported from a concentration limit ≥ 1 μg/m³. Total VOC value is the sum of all components with a concentration ≥ 1μg/m³ and eluting within the retention time window from n-hexane (C6) to n-hexadecane (C16), both included. The sum of all detectable compounds classified as categories C1A or C1B according to Regulation (EC) No 1272/2008 is the sum of all these substances with a concentration ≥ 1 μg/m³. In case the test results exceed the standard limits, substance specific quantification needs to be performed. Formaldehyde can be determined by collection of the sampled air onto DNPH cartridge and subsequent analysis by HPLC/UV in accordance to ISO 16000-3.

Testing following the standard CEN/TS 16516 shall be considered equivalent to those of the ISO 16000 series of standards.

7.3. Other padding materials

Other materials may be permitted to be used as padding in furniture upholstery so long as the following conditions are met:

- Criterion 2 on general requirements for hazardous substances and the other specific restricted substances lists set out in Appendices II and III are respected.
- The padding material shall not have been treated with biocides.
- Feathers or down shall not be used as padding/filling material either alone or in blends.
- If the padding/filling material uses coconut fibre that has been rubberised using latex then the criteria for latex foam shall apply.

Assessment and verification*:*

The applicant shall provide a declaration stating:

- the nature of the padding material used and any other blended materials;
- that the padding material has not been treated with any substances listed in Annex XIV or XVII of REACH or the ECHA Candidate list and that are not specifically restricted under the conditions set out in Appendices II and III;
- that the padding material has not been treated with any biocidal substances;
- that down or animal feathers have not been used in the filling/padding material.

If coconut fibres have been rubberised with latex, then compliance with criterion 7.1 on restricted substances and VOC emissions shall be demonstrated.

CRITERION 8. GLASS

This criterion applies to any glass material included in the final furniture product, regardless of the weight fraction it presents.

8.1. Heavy metals in glass

Any glass used in the furniture product shall comply with the following conditions:

i. Not contain leaded glass.

ii. Not contain lead, mercury or cadmium impurities at levels ≥100 mg/kg per metal.

Assessment and verification

i. The applicant shall provide a declaration from the glass supplier stating that no leaded glass is present in the final furniture product. In the absence of a suitable declaration, the Competent Body may request analysis of glass in the final furniture product via a non-destructive method using a portable X-Ray Flourescence instrument.

ii. The applicant shall declare that the glass present in the furniture product does not contain lead, mercury or cadmium impurities at levels exceeding 100 mg/kg (0,01% w/w). In the absence of a suitable declaration, the Competent Body may request testing of the lead content in the glass by X-Ray Fluorescence according to the principles of the ASTM F2853-10 standard or equivalent.

8.2. Information to the consumer

The applicant shall provide information about the type of glass used within any user manual or similar literature that is supplied to the customer along with the product. Where the glass type is not suitable for disposal along with post-consumer glass containers (such as drinks bottles and glass jars), this shall be clearly and explicitly stated.

Assessment and verification:

The applicant shall provide a copy of any user manual or similar literature to be supplied to the customer, highlighting the text that refers to the type of glass used and how it should be disposed of.

CRITERION 9. FINAL PRODUCT REQUIREMENTS

This requirement refers to the final assembled furniture product. For furniture that is sold disassembled where the customer is responsible for subsequent assembly, the manufacturer must still demonstrate compliance with these requirements for correctly assembled products.

9.1 Fitness for use

a) Durability

Where a relevant and applicable EN standard exists for assessing the durability of any particular furniture product or component thereof, compliance with the minimum requirements set out in those standards shall be demonstrated.

Assessment and verification

The applicant shall provide a declaration stating compliance with relevant EN standards, supported by test reports.

b) Strength

Where a relevant and applicable EN standard exists for assessing the tensile strength, load-bearing capacity or any other strength related product of the final furniture product or components thereof, compliance with the minimum requirements set out in such standards shall be demonstrated.

Assessment and verification

The applicant shall provide a declaration stating compliance with relevant EN standards, supported by test reports.

c) Ergonomics

Any office chairs and office work tables or desks shall meet the minimum ergonomic requirements set out for Type A products as defined in EN 1335-1 and EN 527-1 respectively.

For any tables or chairs marketed for use in educational institutions, these shall comply with the minimum ergonomic requirements stated in EN 1729-1.

Assessment and verification

The applicant shall provide a declaration stating compliance with relevant EN standards, supported by test reports.

9.2 Warranty / Disassembly / Spare Parts

i. A minimum 5-year warranty shall be provided with any EU Ecolabel furniture.

ii. For furniture consisting of multiple components, the product shall be designed for simple disassembly and ease of replacement of damaged component parts.

iii. The furniture manufacturer shall make available spare parts to customers for a period of at least 5 years after the purchase of the furniture item. The cost (if any) of spare parts shall be proportional to the total cost of the furniture product.

Assessment and verification

i. The applicant shall provide a guarantee (or warranty) for repair or replacement during a period of at least 5 years and provide the competent body with samples of the product information sheet and warranty terms that shall be made available to the customer.

ii. The applicant shall provide technical drawings that illustrate how the furniture item is assembled and how it can be disassembled using basic tools and unskilled labour. In the case of upholstery, such disassembly may include the use of zip fastenings and velco to attach/detach sofa cushions from the frame and interior padding from covering materials. If necessary, provision must be made for screw fittings that go directly into wood-based panels so that the screw can be re-inserted during reasembly at a different point than where it was removed from during disassembly.

iii. The applicant shall provide a declaration that spare parts shall be available for a period of at least 5 years from the date of purchase of the product. The parts shall be

available for free during this period if the goods are found to be faulty during normal use or at a proportionate cost if the goods were damaged by misuse.

Criterion 9.3. VOC emissions

The testing of VOC emissions from the final furniture product shall be required when at least one of the following conditions apply:

- Coating substances have been used on wood-based or metal surfaces which have a total VOC content higher than 5% and whose application rate has not been satisfactorily calculated to be less than 35g/m^2 of the coated surface area, and

  the furniture product is intended for indoor use.

- Upholstery materials such as leather, coated fabrics or textiles are used, and

  the furniture product is intended for indoor use.

Sample packaging, handling and conditioning, test chamber conditions and gas analysis methods shall follow the procedures described in ISO 16000. The sample shall be conditioned in the chmaber for a period of 3 days and then the chamber gas analysed and then again 25 days later (a total of 28 days after initial placement in the chamber). Note that if the VOC limits are already complied with after 3 days, no further 28 day testing shall be required.

Ideally, the entire furniture product in its assembled form should be tested, but tesing may be limited only to certain furniture components that can reasonably be assumed to be the dominant source(s) of VOC emissions.

Where upholstery is determined to be the dominant source of VOC emissions, the upholstery shall be placed in the chamber with any relevant covering materials, as it would be used in the final product.

Where furniture contains more than one component to be tested, and these are assessed in separate tests, the emissions shall be added cumulatively when calculating the total emissions from the product.

The total volume of the test chamber shall be sufficient so that the furniture item or component does not obstruct the air inlet or outlet and allows a gap of at least 0.4 metres betweern the item/component and the side walls.

Where a complete furniture product is tested, it shall be placed in the chamber as it would sit normally. Where component(s) are tested, they shall be raised on metal feet or a metal rack to allow a gap of at least 2 cm between the floor and the bottom face of the item/component being tested and maximising the surface area in open contact with chamber air.

The test results, when applied to any single piece of furniture, whether this is the sum of separate component emission tests or the single result from testing of the entire assembled furniture item, shall not exceed the values set in Table 12.

Table 12

Maximum 28 days VOC emission limit values for individual furniture items

Substance	Coated wood, plastic or metal based furniture*		Upholstered furniture
	Chamber concentrations (ug/m^3)		
	3 days	28 days	28 days
TVOC**	3000	400	450
TSVOC†	-	100	80
R value††		≤ 1	≤ 1
Formaldehyde	-	62.5	62.5

*wood based furniture is considered as furniture where at least 50% of the total product weight (excluding packaging) is accounted for by solid wood or wood-based panels.

**TVOC – Total Volatile Organic Compounds, defined as those compounds within the retention range of C_6 to C_{16} (inclusive).

†TSVOC – Total Semi-Volatile Organic Compounds, defined as those compounds within the retention range of C_{17} to C_{22} (inclusive)

†† R value = total of all quotientes (C_i / LCI_i) < 1 (where C_i = substance concentration in the chamber air, LCI_i = LCI value of the substance as defined by the latest data defined under the European Collaborative Action "Urban air, indoor environment and human exposure".

Assessment and verification:

Where the furniture product is deemed to require final product VOC emission testing the applicant shall provide a test report or reports from an accredited laboratory from chamber tests carried according to the ISO 16000 series of standards.

The total VOC emissions on a per product unit basis shall be calculated – either by a single result from testing the entire product or from the addition of emissions from separately tested individual furniture components.

Where furniture components are tested individually, only those components that are reasonably expected to contribute to VOC emissions need to be tested. Uncoated metal or solid wood components shall not require VOC emission testing.

CRITERION 10. INFORMATION APPEARING ON THE EU ECOLABEL

Box 2 of the Ecolabel may contain, where relevent, the following information:

- Wood from sustainable managed forests
- Restricted hazardous substances
- Low formaldehyde emission product
- Low VOC emission product
- Product with extended warranty
- Product designed for disassembly and ease of repair

APPENDIX I: GUIDANCE FOR CALCULATING VOC USED IN SURFACE COATINGS

The calculation method requires the following information:

- Total coated surface area of final assembled product
- The VOC content of the coating compound (in g/L).
- The volume of coating compound present before the coating operation.
- The number of identical units processed during the coating operation.
- The volume of coating compound remaining after the coating operation.

An example calculation is as follows:

- Total coated surface area of final assembled product = **1.5m^2**.
- The VOC content of the coating compound (in g/L) = **120g/L**.
- The volume* of coating compound present before coating operation = **18.5L**.
- The number of identical units processed during the coating operation = **4**.
- The volume* of coating compound remaining after coating operation = **12.5L**

Total area coated	= 4 x 1.5m^2	= **6m^2**.
Total volume of coating compound used	= 18.5 – 12.5	= **6L**.
Total VOC applied to surface	= 3.9L x 120g/L	= **468g**
Total VOC applied per m^2	= 468g/6m^2	= **78g/m^2**.

*note that weight measurements can be used instead of volume so long as the density of the coating compound is known and accounted for in the calculation.

Where more than one coating compound is applied, such as primers or finishing coats, the volumetric consumption and VOC contents should also be calculated and added together.

Options to lower the VOC content used in coatings can be improved by using more efficient techniques. Indicative efficiencies of different coating techniques are shown below.

Table 136.

Indicative efficiency factors for coating techniques:

Coating technique	Effectiveness	Efficiency factor
Spraying device without recycling	50%	0.5
Electrostatic spraying	65%	0.65
Spraying device with recycling	70%	0.7
Spraying bell/disk	80%	0.8
Roller varnishing	95%	0.95
Blanket varnishing	95%	0.95
Vacuum varnishing	95%	0.95
Dipping	95%	0.95
Rinsing	95%	0.95

*these factors are standard values but other degrees of effectiveness may be used if they can be proven.

APPENDIX II: PROHIBITED ARYLAMINE COMPOUNDS IN FINAL LEATHER AND TEXTILE MATERIALS

Included here are the substances listed in Entry 43 that should be tested for in any dyed leather (using EN 17234 approach) or textiles (using EN 14362 approach).

Table 14.

Carcinogenic arylamines to be tested for by EN 14362-1 and -3 for textiles or EN 17234-1 for leather.

Aryl amine	CAS Number	Aryl amine	CAS Number
4-aminodiphenyl	92-67-1	4,4′-oxydianiline	101-80-4
Benzidine	92-87-5	4,4′-thiodianiline	139-65-1
4-chloro-o-toluidine	95-69-2	o-toluidine	95-53-4
2-naphtylamine	91-59-8	2,4-diaminotoluene	95-80-7
o-amino-azotoluene	97-56-3	2,4,5-trimethylaniline	137-17-7
2-amino-4-nitrotoluene	99-55-8	4-aminoazobenzene	60-09-3
4-chloroaniline	106-47-8	o-anisidine	90-04-0
2,4-diaminoanisol	615-05-4	2,4-Xylidine	95-68-1
4,4′-diaminodiphenylmethane	101-77-9	2,6-Xylidine	87-62-7
3,3′-dichlorobenzidine	91-94-1	p-cresidine	120-71-8
3,3′-dimethoxybenzidine	119-90-4	3,3′-dimethylbenzidine	119-93-7
3,3′-dimethyl-4,4′-diaminodiphenylmethane	838-88-0	4,4’-methylene-bis-(2-chloro-aniline)	101-14-4

A number of dye compounds, although not directly restricted themselves, are known to cleave to form some of the prohibited substances listed in Table 17 above. Thus it is strongly recommended that their use be avoided in leather and textile dyeing processes in order to comply with the requirements for carcinogenic arylamines.

As a guide to applicants, the following dyes should not be used:

Table 15.

Indicative list of dyes that may cleave to form carcinogenic arylamines

Disperse dyes		Basic dyes	
Disperse Orange 60	Disperse Yellow 7	Basic Brown 4	Basic Red 114
Disperse Orange 149	Disperse Yellow 23	Basic Red 42	Basic Yellow 82
Disperse Red 151	Disperse Yellow 56	Basic Red 76	Basic Yellow 103
Disperse Red 221	Disperse Yellow 218	Basic Red 111	
Acid dyes			
CI Acid Black 29	CI Acid Red 4	CI Acid Red 85	CI Acid Red 148
CI Acid Black 94	CI Acid Red 5	CI Acid Red 104	CI Acid Red 150
CI Acid Black 131	CI Acid Red 8	CI Acid Red 114	CI Acid Red 158
CI Acid Black 132	CI Acid Red 24	CI Acid Red 115	CI Acid Red 167
CI Acid Black 209	CI Acid Red 26	CI Acid Red 116	CI Acid Red 170
CI Acid Black 232	CI Acid Red 26:1	CI Acid Red 119:1	CI Acid Red 264
CI Acid Brown 415	CI Acid Red 26:2	CI Acid Red 128	CI Acid Red 265
CI Acid Orange 17	CI Acid Red 35	CI Acid Red 115	CI Acid Red 420
CI Acid Orange 24	CI Acid Red 48	CI Acid Red 128	CI Acid Violet 12
CI Acid Orange 45	CI Acid Red 73	CI Acid Red 135	
Direct dyes			
Direct Black 4	Direct Blue 192	Direct Brown 223	Direct Red 28
Direct Black 29	Direct Blue 201	Direct Green 1	Direct Red 37
Direct Black 38	Direct Blue 215	Direct Green 6	Direct Red 39

Direct Black 154	Direct Blue 295	Direct Green 8	Direct Red 44
Direct Blue 1	Direct Blue 306	Direct Green 8.1	Direct Red 46
Direct Blue 2	Direct Brown 1	Direct Green 85	Direct Red 62
Direct Blue 3	Direct Brown 1:2	Direct Orange 1	Direct Red 67
Direct Blue 6	Direct Brown 2	Direct Orange 6	Direct Red 72
Direct Blue 8	Basic Brown 4	Direct Orange 7	Direct Red 126
Direct Blue 9	Direct Brown 6	Direct Orange 8	Direct Red 168
Direct Blue 10	Direct Brown 25	Direct Orange 10	Direct Red 216
Direct Blue 14	Direct Brown 27	Direct Orange 108	Direct Red 264
Direct Blue 15	Direct Brown 31	Direct Red 1	Direct Violet 1
Direct Blue 21	Direct Brown 33	Direct Red 2	Direct Violet 4
Direct Blue 22	Direct Brown 51	Direct Red 7	Direct Violet 12
Direct Blue 25	Direct Brown 59	Direct Red 10	Direct Violet 13
Direct Blue 35	Direct Brown 74	Direct Red 13	Direct Violet 14
Direct Blue 76	Direct Brown 79	Direct Red 17	Direct Violet 21
Direct Blue 116	Direct Brown 95	Direct Red 21	Direct Violet 22
Direct Blue 151	Direct Brown 101	Direct Red 24	Direct Yellow 1
Direct Blue 160	Direct Brown 154	Direct Red 26	Direct Yellow 24
Direct Blue 173	Direct Brown 222	Direct Red 22	Direct Yellow 48

APPENDIX III: RESTRICTED SUBSTANCE LISTS FOR LEATHER, TEXTILE AND COATED FABRIC PRODUCTION STAGES

Table 16.

Restrictions for substances used in any one or more production stages

<table>
<tr><th colspan="2">a) Surfactants, softners and complexing agents</th></tr>
<tr><td rowspan="3">Applicability:
Parts (i), (ii) and (iii) apply to all wet process stages in textile, leather or coated fabric production.</td><td>(i) At least 95% by weight of softeners, complexing agents and surfactants shall be:
"readily biodegradable" under aerobic conditions, or
"inherently biodegradable", and/or
"eliminable" in wastewater treatment plants.
Assessment and verification: The applicant shall provide a declaration from the leather, textile or coated fabric producer, supported by a declaration from their chemical supplier(s) and by relevant SDSs and results of appropriate OECD or ISO tests for:
Readily biodegradability (OECD 301 A, ISO 7827, OECD 301 B, ISO 9439, OECD 301 C, OECD 301 D, ISO 10708, OECD 301 E, OECD 301 F, ISO 9408)
Inherently biodegradability (ISO 14593, OECD 302 A, ISO 9887, OECD 302B, ISO 9888, OECD 302 C)
Eliminability (OECD 303A/B, ISO 11733)
The latest revision of the Detergents Ingredients Database should be used as a reference point for biodegradability and, at the discretion of the Competent Body, accepted as an alternative to providing test reports.
http://ec.europa.eu/environment/ecolabel/documents/did_list/didlist_part_a_en.pdf</td></tr>
<tr><td>(ii) All non-ionic and cationic surfactants must be readily biodegradable under anaerobic conditions.
Assessment and verification: The applicant shall provide a declaration from the leather, textile or coated fabric producer, supported by a declaration from their chemical supplier(s) and by relevant SDSs and results of EN ISO 11734 or ECETOC No 28 OECD 311 tests.
The latest revision of the Detergents Ingredients Database should be used as a reference point for biodegradability and may, at the discretion of the Competent Body, be accepted as an alternative to providing test reports.
http://ec.europa.eu/environment/ecolabel/documents/did_list/didlist_part_a_en.pdf</td></tr>
<tr><td>(iii) Long chain perfluoroalkyl sulfonates (≥C6) and perfluorocarboxylic acids (≥C8) shall not be used in the production processes for ecolabelled products.
Assessment and verification: The applicant shall provide a declaration from the leather, textile or coated fabric prodcuer, supported by a declaration from their chemcial supplier(s) and by relevant SDSs of the non-use of these substances for each production stage.</td></tr>
<tr><th colspan="2">b) Auxiliaries</th></tr>
<tr><td>Auxilliaries used in preparations, formulations and adhesives.
Applicability:</td><td>The following substances shall not be used in any preparations or formulations within the supply chain:
bis(hydrogenated tallow alkyl) dimethyl ammonium chloride (DTDMAC)
distearyl dimethyl ammonium chloride (DSDMAC)
di(hardened tallow) dimethyl ammonium chloride (DHTDMAC)</td></tr>
</table>

Intermediate materials and final leather, textile or coated fabric product.	• ethylene diamine tetra acetate (EDTA), • diethylene triamine penta acetate (DTPA) • 4-(1,1,3,3-tetramethylbutyl)phenol • 1-Methyl-2-pyrrolidone • Nitrilotriacetic acid (NTA) **Assessment and verification**: The applicant shall provide a declaration from the leather, textile or coated fabric supplier, supported by declarations from chemical supplier(s) and relevant SDSs, that these compounds have not been used in any of the production stages for leather, textiles or coated fabrics, ..
c) Solvents	
	The following substances shall not be used in any preparations or formulations during leather, textile or coated fabric production or any part thereof - 2-Methoxyethanol - N,N-dimethylformamide - Bis(2-methoxyethyl) ether - 4,4'- Diaminodiphenylmethane - 1,2,3-trichloropropane - 1,2-Dichloroethane; ethylene dichloride - 2-Ethoxyethanol - Benzene-1,4-diamine dihydochloride - Bis(2-methoxyethyl) ether - Formamide - N,N-dimethylacetamide (DMAC) - N-methyl-2-pyrrolidone; 1-methyl-2-pyrrolidone - Trichloroethylene **Assessment and verification**: The applicant shall provide a declaration from the leather, textile or coated fabric producer, supported by declarations from chemical suppliers and relevant SDSs, stating that these solvents have not been used in any of the leather, textile or coated fabric production processes.

Table 17.

Restricted substances in dyeing and printing processes

Chemical type	Restriction
i. Carriers used in dyeing process	Where disperse dyes are used, halogenated dyeing accelerants (carriers) shall not be used (Examples of carriers include: 1,2-dichlorobenzene, 1,2,4-trichlorobenzene, chlorophenoxyethanol). **Assessment and verification**: The applicant shall provide a declaration, supported by declarations of leather, textile or coated fabric producers, their chemical supplier(s) and any relevant SDSs, that states the non-use of any halogenated carriers during the dyeing process of any leather, textiles or coated fabrics used in the furniture product.
ii. Chrome mordant	Chrome mordant dyes shall not be used.

dyes	**Assessment and verification:** The applicant shall provide a declaration, supported by declarations of leather, textile or coated fabric producers, their chemical supplier(s) and any relevant SDSs, that states the non-use of any chrome mordant dyes during the dyeing process of any leather, textiles or coated fabrics used in the furniture product.
iii. Pigments	Pigments based on cadmium, lead, chromium VI, mercury, arsenic and antimony shall not be used **Assessment and verification:** The applicant shall provide a declaration, supported by declarations of leather, textile or coated fabric producers, their chemical supplier(s) and any relevant SDSs, that states the non-use of any pigments based on the mentioned heavy metals during dyeing or printing processes with any leather, textiles or coated fabrics used in the furniture product.

Table 18.

Restrictions for substances used in coating and finishing processes

a) Fluorinated Compounds	
Applicability: Upholstery covering materials with integrated water or stain repellent function	(i) Fluorinated water, stain and oil repellent treatments shall not be impregnated into furniture covering material finishes. This restriction includes treatments with perfluorinated and polyfluorinated substances. Only non-fluorinated treatments using substances that are readily biodegradable and non-bioaccumulative in the aquatic environment shall be permitted. **Assessment and verification**: The applicant shall provide a declaration, supported by declarations from leather, textile or coated fabric producers, declarations from chemical suppliers and any relevant SDSs, that state non-use of perfluorinated or polyfluorinated substances in leather, textile or coated fabric finishing operations. In the absence of an acceptable declaration, the Competent Body may further request testing of the covering material according to the methods defined by CEN/TS 15968:2010. For non-fluorinated treatments, readily biodegradability properties may be demonstrated by tests conducted according to the following methods: (OECD 301 A, ISO 7827, OECD 301 B, ISO 9439, OECD 301 C, OECD 301 D, ISO 10708, OECD 301 E, OECD 301 F, ISO 9408) Non-bioaccumulative properties may be demonstrated by tests that show partion coefficients (Log Kow) of ≤ 3 or Bioconcentration Factors (BCF) ≤ 100 according. With non-fluorinated treatments, the latest revision of the Detergents Ingredients Database should be used as a reference point for biodegradability and may, at the discretion of the Competent Body, be accepted as an alternative to providing test reports. http://ec.europa.eu/environment/ecolabel/documents/did_list/didlist_part_a_en.pdf
f) Polycyclic Aromatic Hydrocarbons (PAHs)	
Applicability: For finishes applied to coated fabrics, textiles and plastics.	The specified limits for polycyclic aromatic hydrocarbons (PAHs) shall not be exceeded in the plastic, coatings, natural and synthetic rubber: Naphthalene (CAS 91-20-3) Acenaphthene (CAS 83-32-9) Phenanthrene (CAS 85-1-8) Fluoranthene (CAS 206-44-0) Chrysene (CAS 218-01-9) Benzo[b]fluoranthene (CAS 205-99-2) Benzo[a]pyrene (CAS 50-32-8) Indeno[1,2,3-c,d]pyrene (CAS 193-39-5) Acenaphthylene (CAS 208-96-8) Fluorene (CAS 86-73-7) Anthracene (CAS 120-12-7) Pyrene (CAS 129-00-0) Benzo[a]anthracene (CAS 56-55-3) Benzo[k]fluoranthene (CAS 207-08-9) Dibenzo[a,h]anthrancene (CAS 53-70-3) Benzo[g,h,i]perylene (CAS 191-24-2)

	Benzo[j]fluoranthene (CAS 205-82-3) Benzo[e]pyrene (CAS 192-97-2) **Assessment and verification:** The applicant shall provide a test report, using test method ZEK 01.2-08, that shows the sum concentrations of the chemicals listed above does not exceed 10 mg/kg and that the concentration of Benzo[a]pyrene does not exceed 1 mg/kg.