Draft for

Public Comment

Eco-labelling criteria - General furniture

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Foreword

This eco-labelling criteria document is developed by FRIM Product Certification System **(PCS)** to support implementation of labelling for environmentally preferred products or services in Malaysia. The need for environmental labelling for products and services has been identified by the Malaysian industries to respond to requests from both domestic and foreign purchasers. Globally and locally established concepts for labelling have been taken into consideration in developing the criteria, whilst evaluation methodologies selected are based on life cycle assessment approach as specified in ISO 14024: 2018 'Environmental labels and declarations – Type I environmental labelling – Principles and procedures" and consideration with reference to international or other recognised standards.

This eco-labelling criteria document is developed through consultation with the industry players and other interested parties, and endorsed for adoption by a committee established by FRIM PCS. This document is subject to review to reflect changing needs and conditions.

Users and other interested parties may submit comment on the content of this document for incorporation into future revisions.

The use of this eco-labelling criteria document is not mandatory unless otherwise required by regulatory authorities.

Committee Representation

The Technical Committee which developed this Eco Label Criteria consists of representatives from the following organisations:

Forest Research Institute of Malaysia
Malaysia Timber Industry Board
Ministry of Natural Resources and Environmental Sustainability (NRES)
Universiti Putra Malaysia
Malaysian Furniture Council
Muar Furniture Association
Eco Concepts Research and Consulting

Eco-labelling criteria - General furniture

1. Scope

This document specifies requirements for, but not limited to furniture for domestic and non-domestic applications as follows:

a) furniture that are ready to use as final products such as chairs, sofas, desks, tables, wardrobes/cabinets, kitchen furniture, bedroom furniture and outdoor furniture.
b) fittings such as partitions, window fittings, shelving and wall furniture.

This document specifies requirements for all types of furniture, with regard to usage, materials, design/construction or manufacturing process.

2. Normative references

The following normative references are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the normative reference (including any amendments) applies.

2.1 ISO 17064, *Wood-based panels - Fibreboard, particleboard and oriented strand board (OSB)- Vocabulary.*

2.2 EN 717-1, *Wood-based panels - Determination of formaldehyde release – Formaldehyde emission by the chamber method.*

2.3 JIS A 1460, *Determination of the emission of formaldehyde from building boards – Desiccator Method.*

2.4 *ASTM D6007, Standard test method for determining formaldehyde concentrations in air from wood products using a small-scale chamber*

2.5 ISO 16000-9, Determination of the emission of volatile organic compounds from building products and furnishing — Emission test chamber method

2.6 ISO 16000-16, Determination of the emission of volatile organic compounds from building products and furnishing — Sampling, storage of samples and preparation of test specimens

2.7 *Environmental Quality (Clean Air) Regulations 2014*

2.8 *Environmental Quality (Industrial Effluents) Regulations 2009*

2.9 *Environmental Quality (Scheduled Wastes) Regulations 2005*

2.10 *Environmental Quality (Declared Activities) (Open Burning) Order 2003*

2.11 Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

3 Terms and definitions

For the purposes of this criteria document, the terms and definitions given in ISO 17064 and the following apply:

3.1 Adhesive

Compound that adheres or bonds two items together.

3.2 Metal furniture

Furniture products that are made of at least 90% metal materials (e.g. cold rolled steel sheet (CRSS), electro galvanized, HSS) through the process of cutting, punching, folding, welding, etc., with electroplating, phosphating, spraying and other major process means for surface treatment and decoration.

3.3 Paints, primers and varnishes

Surface coatings used for furniture depending on the type of surface material to be coated, the use of furniture (indoor or outdoor) and desired durability. Common paints are chalk paint, milk paint, acrylic paint, latex paint and oil-based paint. As for varnish, the common ones are polyurethane, polyacrylic, shellac, lacquer and oil finish.

3.4 Panel furniture

Furniture products developed from engineered wood materials, such as plywood, particle board and medium density fiberboard (MDF) that meet the requirements of specified furniture product standards and can be combined

3.5 Plastic Furniture

Furniture produced using 100% polypropylene (entire product or furniture components such as table top, seat or back rest)

3.6 Polyvinyl chloride (PVC)

A synthetic thermoplastic material made by polymerizing vinyl chloride

3.7 Seating Units

A chair intended for single user. Units with multiple seating position (tandem units, couches, benches etc.) intended for more than one user are treated as multiple seating units with the number of positions (units) defined by the ANSI/BIFMA X5.5 Lounge seating Standard.

3.8 Upholstery Materials

Upholstery covering materials are key in both the aesthetics and functionality of furniture. They determine the appearance of a piece of furniture, influence its durability, comfort, and maintenance. The materials may include fabric, leather, wool, silk or other natural or synthetic materials.

Upholstery padding not only enhances the seating experience but also helps protect the furniture structure and extends its lifespan. It provides comfort to user, define shape and structure to furniture, reduce noise and can provide insulation to furniture. Common materials include different types of foam (low density, high density, memory or latex) made of polyurethane (PU), polyethylene (PE), ethylene vinyl acetate (EVA), polypropylene (PP).

3.9 Upholstery furniture
This furniture products are developed from a combination of natural fabric materials (such as leather and cotton) or synthetics (such as polyester, velvet, microfiber and rayon) with other furniture material components such as iron, plastic, wood, plywood and foam.

3.10 volatile organic compound
Any organic compound having an initial boiling point less than or equal to 250 °C measured at a standard atmospheric pressure of 101.3 kPa.

3.11 Workstation System
A collection of furniture (excluding seating) that formed complete office workspace for an individual occupant. Workstation systems can be panel or freestanding..

3.12 Wooden furniture
Furniture products developed 100% from solid wood materials and also products combined together (plywood + solid wood) to produce plywood sandwich panels that meet the requirements of the specified furniture product standards.

4. Eco-labelling criteria

4.1 General requirements

4.1.1 The quality and safety aspects of the product shall comply with applicable Malaysian standard(s) and/or any other national/international standards.

4.1.2 The manufacturer shall provide the end user information such as installation, storage, use and safe handling precautions to maximise the product performance.

4.2 Environmental requirements

4.2.1 Source of Wood

The wood shall be from sustainable forest certified either by the Malaysian Timber Certification Scheme (MTCS) or Programme for the Endorsement of Forest Certification Scheme (PEFC), or the Forest Stewardship Council (FSC); or any other equivalent means of proof, including the source(s) of replanting.

4.2.2 Formaldehyde Emissions

The formaldehyde emission limit for types of board used shall be accordance with **Table 1.**

4.2.3 Plastic

PVC free: PVC shall not be used in any part of the furniture product.

Heavy metals in plastic additives: plastic parts and any surface layers shall not be manufactured using additives that contain the following heavy metals: cadmium, chromium VI, lead, mercury or tin.

Recycled plastic content: If the total content of plastic in the furniture product (excluding packaging) exceeds 20%, then the average recycled content of all plastic parts combined must be at least 30% (on a weight-by-weight basis).

4.2.4 Surface Coating

Electroplating restrictions: Chromium VI or cadmium shall not be used for electro plating operations of any metal component parts used in the final furniture product. Nickel shall only be permitted in electroplating operations if the nickel release rate from the electroplated component part is less than 0,5 µg/cm^2/week according to EN 1811.

Heavy metals in paints, primers and varnishes: Paints, primers or varnishes used on metal component parts shall not contain additives based on cadmium, lead, chromium VI, mercury, arsenic or selenium, at concentrations exceeding 0,010 % w/w for each individual metal in the in-can paint, primer or varnish formulation.

VOC content in paints, primers and varnishes: If coated component parts account for more than 5% of the furniture product weight (excluding packaging) then ~~one of~~ the following conditions must be complied with:

(i) that the in-can concentration of VOCs is less than 5%,
(ii) that the total quantity of VOCs applied is less than 30g/m^2 of coated surface area, or
(iii) that the total quantity of VOCs applied is between 30 and 60g/m^2 and the coating meets defined minimum durability criteria set out in **Table 2,** or
(iv) that the VOC emissions from the final coated component or entire furniture product meet defined VOC emission criteria (**Table 5**).

4.2.5 Upholstery Covering Materials

Upholstery Covering Materials shall not be manufactured from PVC. For cotton, minimum organic (10%) or IPM (20%) contents are set for virgin cotton fibres. or in compliance with OEKO-TEX Standard 100

4.2.6 Upholstery Padding Materials

VOC emissions: Maximum limits for VOC emissions from latex foams (24h) and polyurethane (PUR) foams (72h) under are set out in **Table 3** and **Table 4** respectively.

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

4.2.7 VOC Emission of Furniture

Any furniture with (i) leather upholstery, (ii) coated fabric upholstery or (iii) more than 5% by weight of components coated with high VOC content coatings and/or VOC application rates are not shown to be below 30g/m^2 coated area shall be subject to VOC emission testing of either the entire furniture product or the leather upholstery, coated fabric upholstery or coated component parts only. Maximum VOC emission values are set in **Table 5**.

4.2.8 Toxic or Harmful Chemicals

Chemicals classified as

(i) Carcinogenic,
(ii) Mutagenic toxic for reproduction,
(iii) Toxic,

under Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 shall not be used in the manufacturing process.

4.2.9 Requirements as Carbon Foot Print or Green House Gases Emission

The manufacturer shall compile the carbon foot print or greenhouse gases emission of the products to be certified and the compilation shall be reviewed/validated by a competent party.

4.2.10 Reusability and recyclability

Wastes from production such as upholstery, metals, plastics, leather, wood wastes and wood dust shall be collected for recycling and/or reuse.

The manufacturer or dealers shall collect back the packaging materials for recycling and/or reuse if permitted by the customers.

4.3 Compliance with Applicable Environmental Legal Requirements

The manufacturing process shall comply with relevant national or local environmental regulations such as the following:

a) *Environmental Quality (Clean Air) Regulations 2014*;
b) *Environmental Quality (Industrial Effluents) Regulations 2009;*
c) *Environmental Quality (Scheduled Wastes) Regulations 2005*; and
d) *Environmental Quality (Declared Activities) (Open Burning) Order 2003*

4.4 Other Requirements

4.4.1 Designed for Ease of Disassembly:
For furniture consisting of multiple component parts/materials, the product shall be designed for ease of disassembly for repair, reuse and recycling.

4.4.2 Extended product guarantee:
At no additional cost, a minimum of a five-year guarantee shall be provided, effective from the date of delivery of the product and without prejudice to the legal obligations of the manufacturer and seller under national law.

4.4.3 Provision of spare parts:
The furniture manufacturer shall make spare parts available to customers for a period of at least 5 years from the date of delivery of the product at a cost (if any) that is proportional to the total cost of the furniture product.

4.4.4 Use Consumer information:
A single consumer information document shall be provided with the product which includes information such as installation, storage, use and safe handling precautions to maximise the product performance in the language of the country where the product is placed on the market.

5. Marking

Each product and/or packaging should be clearly and indelibly marked with the following:

a) product description;
b) number of this eco-labelling criteria document;
c) FRIM eco-labelling mark; and
d) manufacturer's name or trade mark.

6. Certification Mark

Each product and its packaging, may by arrangement with FRIM PCS, be marked with its eco-labelling certification mark, provided the product conforms to the requirements of this criteria document.

Table 1. Formaldehyde Emission Limits by Board type

Board type	Limit value	Standard	Testing method
PB, MDF, Plywood, OSB	≤ 0.124 mg/m^3	EN 717-1 or equivalent standards	Chamber
MDF	≤ 0.11 ppm	ASTM D6007 or Equivalent standards	Chamber
PB	≤ 0.09 ppm		
Thin MDF	≤ 0.13 ppm		
Plywood	≤ 0.05 ppm		
Plywood	≤ 0.5 mg/l	JIS A 1460 or Equivalent standards	Desiccator
MDF			
PB			

NOTES:
1. MDF: medium density fibreboard
2. PB: particle board
3. OSB: Oriented Strand Board

Table 2: Surface finish quality requirements if VOC application rate is 30-60 g/m^2

Test standard	Condition	Required result
EN 12722. Furniture — Assessment of surface resistance to dry heat	Contact with 70 °C heat source	No change after testing
EN 15186. Furniture — Assessment of the surface resistance to scratching	Contact with diamond scratching tip	Method A: no scratches ≥ 0,30 mm when a load of 5 N has been applied or, Method B: no scratches visible in ≥ 6 slots in the viewing template where a load of 5 N has been applied

Table 3: **VOC emission limits for latex foams**

Substance	Limit value (mg/m^2.hr)
VOCs (total), consists of the following: • 1,1,1 — trichloroethane • Styrene • Tetrachloroethylene • Toluene • Trichlorethylene	0,5

Assessment and verification: The applicant shall provide a declaration of compliance with criterion in Table 3 above which, if applicable, shall be supported by a test report presenting the results of chamber test analysis in accordance with USEPA method.

Table 4: 72-hour VOC emission limits for polyurethane foams

Substance	Limit value (mg/m^3)
VOCs (total), consists of the following: • 1,1,1 — trichloroethane • Styrene • Tetrachloroethylene • Toluene • Trichlorethylene	0,5

Assessment and verification: The applicant shall provide a declaration of compliance with criterion in Table 4 above which, if applicable, shall be supported by a test report presenting the results of chamber test analysis in accordance with USEPA method.

Table 5: Maximum VOC Emission Limit Values for Specific Furniture Products

Test parameter	Seating Units	Office furniture including workstation systems
Chamber volume	In the range of 0.05 – 55 m^3	
Loading rate	Product shall occupy approximately 25 % of chamber volume	
Ventilation rate (*)	4,0 m^3/h	2,0 m^3/h
$TVOC_{toluene}$	≤ 0.25mg/m^3	≤ 0.5 mg/m^3
Formaldehyde	$\underline{\leq}$ 25 ppb	$\underline{\leq}$ 50 ppb
Total Aldehydes	≤ 50ppb	$\underline{\leq}$ 100 ppb
4-Phenylcyclohexene	≤ 0.00325 mg/m^3	≤ 0.00650 mg/m^3

Assessment and verification: The applicant shall provide a declaration of compliance with criterion in Table 5 above which, if applicable, shall be supported by a test report presenting the results of chamber test analysis in accordance with USEPA method.

Appendix 1 - HS Code for General Furniture

HEADER	SUB	ITEM	DESCRIPTION	UNIT
9403	10	0000	- Metal furniture of a kind used in offices	kg
9403	20	9000	- Other metal furniture: Other	u
9403	30	0000	- Wooden furniture of a kind used in offices	u
9403	40	0000	- Wooden furniture of a kind used in the kitchen	u
9403	50	0000	- Wooden furniture of a kind used in the bedroom	u
9403	60	9000	- Other wooden furniture: other	u
9403	70	9000	- Furniture of plastics: other	kg

Source: JKDM HS Explorer. https://ezhs.customs.gov.my/

Acknowledgements

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