



Green Label Product

Products made from rubberwood

(TGL – 22- R1 – 11)

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Products made from rubberwood (TGL-22-R1-11)

1. Background

One of the way to decrease wood harvesting from natural forests is to promote utilization of rubber trees towards rubberwood processing for furniture and other finished products. In addition, agricultural waste utilization as wooden products instead of burning helps reduce carbon dioxide emission which is major contribution of greenhouse effect.

However, pentachlorophenol, volatile organic compounds and formaldehyde may be added to either rubberwood or rubberwood composite board used as raw materials for furniture production. These compounds are harmful to health in terms of cellular accumulation by skin contact or inhalation. Consequently, finished product made from rubberwood or rubberwood composite board intentionally certified to the Green Label shall conform to the requirements for example, volatile organic compounds and formaldehyde not exceeding restricted levels, no presence of pentachlorophenol, no harmful substances added such as lead, mercury, cadmium, chromium (+6), arsenic, antimony, triphenyl tins: TPT and tributyl tins: TBT, etc.

The Green Label criteria for products made from rubberwood leads to encouragement of end of economic life rubber trees usage in terms of value-added rubberwood products as furniture and other finished products, in addition to promotion of environmentally friendly products. Furthermore, reduction on environmental impacts and harmful health effects are attributable to the Green Label criteria regarding environmental requirements include eco-friendly raw materials for rubber wood production and limitation of pollutant emissions from production.

2. Scope

These criteria shall apply to finished products made from rubberwood or rubberwood composite boards used as follows;

- 2.1 Furniture such as bed, cabinet, table, chair, shelf
- 2.2 Construction materials such as wood-based panel doors, solid wood parquet strips with rectangular face, wooden frames and panel frames for door and window, except plywood and wood composite boards not processed into products.
- 2.3 Toys

3. Definitions

Rubberwood refers to a medium tropical tree, scientific name *Hevea brasiliensis* Muell. Arg belonging to the family Euphorbiaceae.

Chemical properties: Rubberwood consists of approximately 22-29% lignin, 20% pentosan, 70% homocellulose and 40% alfa-cellulose. This wood contains higher starch and sugar than other woods.

Physical properties: Rubberwood is medium-hard wood having moisture content of 12%, specific gravity of 0.7, bending strength of 973 kg/cm², compression parallel to grain of 478 kg/cm², shear stress of 162 kg/cm² and strength of 538 kg, comparable to red meranti and yellow meranti.

Natural durability: Rubberwood provides low natural durability. According to the test using small rectangular specimens embedded in the ground method, it indicates average natural durability of 1.9-year.

Rubberwood composite board here refers to a product in the form of panel or board manufactured using heat press machine to bind particles or rubberwood fibers together with adhesives or wood lignin to form composite material, which provides different levels of density such as particleboard, fiberboard.

Volatile organic compounds: VOCs refers to hydrocarbon compounds or organic substances in the form of liquid or solid which evaporate or sublimate easily at a temperature of 110±5 °C under a standard atmospheric pressure.

4. General requirements

4.1 A rubber wood as raw material for production shall be certified to Thai Industrial Standards for Rubberwood sawn timber, TIS 2423 or shall pass the Thai Industrial Standard product quality tests according to mentioned standard. In addition, the product shall be certified to relevant Thai Industrial Standards for that product as detailed in Table 1;

Table 1 Thai Industrial Standards for wooden products

No.	TIS Codes	Thai Industrial Standards
1	TIS 192	Wood-based panel doors
2	TIS 193	Solid wood parquet strips with rectangular face
3	TIS 504	Wooden frames and panel frames for door and window
4	TIS 685	Toys
5	TIS 930	Office furniture: chairs
6	TIS 931	Office furniture: desks
7	TIS 1051	Office furniture: cabinets and shelves
8	TIS 1208	Domestic furniture: tables for living rooms
9	TIS 1209	Domestic furniture: chairs for living rooms
10	TIS 1494	Educational institution furniture : desks
11	TIS 1495	Educational institution furniture : chairs

or shall pass the relevant Thai Industrial Standard product quality tests according to mentioned standard in Table 1 or equivalent international/national standard or recognized international/national standard such as ASTM or JIS.

- 4.2 Production, transportation, and post-industrial waste disposal shall comply with the government laws and regulations

5. Environmental requirements

5.1 Furniture and Construction materials

5.1.1 Product shall be made from wood harvested from certified planted forests according to government regulations.

5.1.2 Product shall contain at least 70% by weight of wood.

5.1.3 Wood components in product shall contain at least 75% by weight of rubberwood.

5.1.4 Contents of formaldehyde in raw materials shall comply with the following requirements;

- 1) Formaldehyde content in wood shall not exceed 8 mg/100 g dry board.
or
- 2) Formaldehyde emission from wood shall not exceed 1.5 mg/L dry board.

5.1.5 Product shall not contain pentachlorophenol.

Note: The presence of pentachlorophenol in product due to impurities and contamination of raw materials shall not exceed 5 ppm.

5.1.6 Paints used in product shall be paints for wood substrates which are certified to the Green Label for Paints (TGL-4-R3-08)* or meet the Green Label requirements for wood substrate paints.

* Note: In case of revision, the updated edition of the Green Label criteria for paints shall be effective.

5.2 Toys

5.2.1 Product shall be made from wood harvested from certified planted forests according to government regulations.

5.2.2 Product shall contain at least 70% by weight of wood.

5.2.3 Wooden components of product shall contain at least 75% by weight of rubberwood.

5.2.4 Contents of formaldehyde in raw materials shall comply with the following requirements;

- 1) Formaldehyde content in wood shall not exceed 8 mg/100 g dry board.
or
- 2) Formaldehyde emission from wood shall not exceed 1.5 mg/L dry board.

5.2.5 Product shall not contain pentachlorophenol.

Note: The presence of pentachlorophenol in product due to impurities and contamination of raw materials shall not exceed 5 ppm.

5.2.6 No presences of synthetic fragrances in product.

5.2.7 No presences of flame retardants in product.

5.2.8 Paints and coatings used in product shall comply with the following requirements;

- 1) No halogenated solvents
- 2) No aromatic solvents
- 3) Volatile organic compounds not exceeding 200 mg/L
- 4) Migration of certain elements shall not exceed the limits as specified in Table 2.

Table 2 The limits for migration of certain elements

Elements	Migration limits (mg/kg)
Chromium (Cr)	60
Cadmium (Cd)	75
Barium (Ba)	1000
Mercury (Hg)	60
Arsenic (As)	25
Selenium (Se)	500
Antimony (Sb)	60
Lead (Pb)	90

5.3 Packaging

5.3.1 Paper packaging

- 1) Kraft liner board for transportations shall be certified to the Green Label for Papers (TGL-8-R1-06)* or meet the Green Label requirements for Kraft liner board.
- 2) Corrugating medium paper shall be certified to the Green Label for Papers (TGL-8-R1-06)* or meet the Green Label requirements for corrugating medium paper.
- 3) Individual paper packaging shall be made from at least 70% recycled pulp.

* Note: In case of revision, the updated edition of the Green Label criteria for papers shall be effective.

5.3.2 In case of providing foam material in packaging, CFCs shall not be used in foam material production.

5.3.3 Paints used for printing on packaging shall not contain heavy metals include mercury, lead, cadmium and chromium (+6).

Note: The sum of concentrations of mercury, lead, cadmium and chromium (+6) due to impurities and contamination of raw materials shall not exceed 100 ppm.

5.3.4 Plastic packaging shall be symbolized according to Thai Industrial Standard: recycling plastics, TIS 1310 or ISO 1043 or ISO 11469.

6. Testing and certification

6.1 Furniture and Construction materials

6.1.1 The manufacturer shall submit certificate of Thai Industrial Standards for Rubberwood sawn timber, TIS 2423 or submit test reports indicating compliance of product quality with Thai Industrial Standard for Rubberwood sawn timber, TIS 2423. In addition, the manufacturer shall submit certificate of relevant Thai Industrial Standards for that product or shall pass the relevant Thai Industrial Standard product quality tests for that product or equivalent international/national standard or recognized international/national standard such as ASTM or JIS.

6.1.2 The manufacturer shall submit reliable documents stating the origin of wood harvested from certified planted forests according to government regulations include a copy of legal ownership of land certificate or a copy of verification certificate of agriculturist under replanting program or a certified document issued by wood supplier. The certified document shall be stamped with the company hallmark and signed by authorized personnel of the manufacturer.

6.1.3 The manufacturer shall submit certified document stating wood content in a product of at least 70% by weight. The certified document shall be stamped with the company hallmark and signed by authorized personnel of the manufacturer.

6.1.4 The manufacturer shall submit certified document stating rubberwood content in wooden components of product of at least 70% by weight. The certified document shall be stamped with the company hallmark and signed by authorized personnel of the manufacturer.

6.1.5 The manufacturer shall submit test reports of formaldehyde content using

test method in accordance with the following standards;

- 1) EN 120 for determining formaldehyde content in wood or
- 2) JIS A 5908 for determining formaldehyde emission from dry board or
- 3) recognized international/ national standard.

6.1.6 The manufacturer shall submit test reports of pentachlorophenol content using test method in accordance with EN 71 part 9 or recognized international/ national standard.

6.1.7 The manufacturer shall submit certificate of Thai Green Label for wood substrate paints (TGL-4-R3-08), or submit test reports indicating compliance of product quality with Thai Green Label requirements for wood substrate paints. The certified document shall be stamped with the company hallmark and signed by authorized personnel of the manufacturer.

6.1.8 In case of paper packaging, the manufacturer shall submit relevant documents as follows;

- 1) For Kraft liner board for transportations, the manufacturer shall submit certificate of Thai Green Label for Kraft liner board (TGL-8), or submit test reports indicating compliance of product quality with Thai Green Label requirements for Kraft liner board.
- 2) For corrugating medium paper, the manufacturer shall submit certificate of Thai Green Label for corrugating medium paper (TGL-8), or submit test reports indicating compliance of product quality with Thai Green Label requirements for corrugating medium paper.

The certified document shall be stamped with the company hallmark and signed by authorized personnel of the packaging manufacturer.

6.1.9 The manufacturer shall submit certified document stating no CFCs added during production process of foam material for packaging. The certified document shall be stamped with the company hallmark and signed by authorized personnel of the packaging manufacturer.

6.1.10 The manufacturer shall submit test reports of heavy metal contents in paints used for printing on packaging using test methods in accordance with the following standards;

- 1) ISO 3856-7 or ASTM D 3624 for mercury content
- 2) ISO 3856-1 or ASTM D 3335 for lead content
- 3) ISO 3856-4 or ASTM D 3335 for cadmium content
- 4) ISO 3856-5 for chromium (+6) content
or recognized international/ national standard.

6.2 Toys

- 6.2.1 The manufacturer shall submit certificate of Thai Industrial Standards for Rubberwood sawn timber, TIS 2423 or submit test reports indicating compliance of product quality with Thai Industrial Standard for Rubberwood sawn timber, TIS 2423, and the manufacturer shall submit certificate of Thai Industrial Standards for Toys, TIS 685 or submit test reports indicating compliance of product quality with Thai Industrial Standard as mentioned or recognized international/national standard such as ASTM or JIS.
- 6.2.2 The manufacturer shall submit reliable documents stating the origin of wood harvested from certified planted forests according to government regulations include a copy of legal ownership of land certificate or a copy of verification certificate of agriculturist under replanting program or a certified document issued by wood supplier. The certified document shall be stamped with the company hallmark and signed by authorized personnel of the manufacturer.
- 6.2.3 The manufacturer shall submit certified document stating wood content in a product of at least 70% by weight. The certified document shall be stamped with the company hallmark and signed by authorized personnel of the manufacturer.
- 6.2.4 The manufacturer shall submit certified document stating rubberwood content in wooden components of product of at least 70% by weight. The certified document shall be stamped with the company hallmark and signed by authorized personnel of the manufacturer.
- 6.2.5 The manufacturer shall submit test reports of formaldehyde content using test method in accordance with the following standards;
- 1) EN 120 for determining formaldehyde content in wood or
 - 2) JIS A 5908 for determining formaldehyde emission from dry board or
 - 3) recognized international/ national standard.
- 6.2.6 The manufacturer shall submit test reports of pentachlorophenol content using test method in accordance with EN 71 part 9 or recognized international/ national standard.
- 6.2.7 The manufacturer shall submit certified document stating no presence of synthetic fragrances in product. The certified document shall be stamped with the company hallmark and signed by authorized personnel of the manufacturer.
- 6.2.8 The manufacturer shall submit certified document stating no presence of flame retardants in product. The certified document shall be stamped with the company hallmark and signed by authorized personnel of the manufacturer.
- 6.2.9 The manufacturer shall submit certified document stating no presence of

halogenated solvents nor aromatic solvents in paints and coatings used in product. The certified document shall be stamped with the company hallmark and signed by authorized personnel of the manufacturer.

- 6.2.10 The manufacturer shall submit test reports of VOCs content in paints and coatings using test method in accordance with ISO 1189-1 or ISO 1189-2 or recognized international/ national standard.
- 6.2.11 The manufacturer shall submit test reports of migration of certain elements specified in Environmental criteria No. 5.2.8, Clause 4) using test method in accordance with EN 71 part 3 or recognized international/ national standard.
- 6.2.12 In case of paper packaging, the manufacturer shall submit relevant documents as follows;
- 1) For Kraft liner board, the manufacturer shall submit certificate of Thai Green Label for Kraft liner board (TGL-8), or submit test reports indicating compliance of product quality with Thai Green Label requirements for Kraft liner board.
 - 2) For corrugating medium paper, the manufacturer shall submit certificate of Thai Green Label for corrugating medium paper (TGL-8), or submit test reports indicating compliance of product quality with Thai Green Label requirements for corrugating medium paper.
 - 3) For individual paper packaging, the manufacturer shall submit certified document stating content of recycled pulp in packaging of least 70%.

The certified document shall be stamped with the company hallmark and signed by authorized personnel of the packaging manufacturer.

- 6.2.13 The manufacturer shall submit certified document stating no CFCs added during production process of foam material for packaging. The certified document shall be stamped with the company hallmark and signed by authorized personnel of the packaging manufacturer.
- 6.2.14 The manufacturer shall submit test reports of heavy metal contents in paints used for printing on packaging using test methods in accordance with the following standards;
- 1) ISO 3856-7 or ASTM D 3624 for mercury content
 - 2) ISO 3856-1 or ASTM D 3335 for lead content
 - 3) ISO 3856-4 or ASTM D 3335 for cadmium content
 - 4) ISO 3856-5 for chromium (+6) content
or recognized international/ national standard.

Notes: 1) The test shall be performed in laboratory as follows;

- Government laboratory or a laboratory under the supervision of the governor of the state
 - Private laboratories that have been accredited testing laboratory in accordance with the standard requirements, with the capabilities of the laboratory calibration and testing laboratories. Standard No.17025 (ISO/IEC 17025) or laboratory mill manufacturer, which is signed by the authorized signatory of the Company.
- 2) Test reports used to apply for the Green Label requirements shall not exceed 1 year duration except test reports of VOCs content and heavy metal contents used in product which shall not exceed 2 years duration.