



Green Label Product Cement Board (TGL-47-11)

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TGL-47-11 Cement Board

1. Background

The construction industry in Thailand is growing steadily every year. According to the population increased and the economic growth of the country, making the construction materials' demands currently has a higher rate. In order to respond to the needs of construction materials for residential buildings and infrastructure building (both internal and external), new technology to develop cement board products have been used.

Cement board products are suitable for being construction material due to an easy set, sound and heat insulation, weather resistant, water resistant, insects and fungi resistant, and resistant to burning as well. Cement board is a replacement products with the use of asbestos cement, asbestos (Asbestos fiber) which its component results in harm to consumers such as chronic lung disease, Meso-thelioma. Moreover, the cement board with components of wood from planted forests or agricultural residues, or recycle pulp can replace the use of wood from natural forests. This can reduce the impact on forest conservation, reduce imports from abroad and increase the value of scrap wood and agricultural residues to be more available. It can reduce the environmental impact caused by cutting down wood.

2. Scope

These Green Label product criteria are applicable to fiber cement board, wood cement board, and finished products made of those applicable cement boards which their properties or quality of the original products are not changed.

3. Definitions

Cement Board refers to products made from cement mixed or attached to pieces of wood or fiber

Cement fiber sheets refers to products used in construction, made of fiber cement and water or other compositions such as: paint, sand etc.

Fiber refers to organic fiber got from crops such as coconut, sisal, organic and / or inorganic synthetic fibers which is clean and sugar-free.

Cement board means the product which is a sheet made of wood and a range of 1,100 to 1,300 kilograms per cubic meter density of the Portland cement.

A piece of wood refers to a piece or a part of wood or Ligno-cellulosic material which have been cut into one of these following:

Flake refers to a thin piece of wood with the grain direction parallel to the surface of the wood. The cutting blade lies parallel to the orientation of the wood grain at an angle to the axis of the fiber.

Wafer refers to a piece of wood that look like flake but wider and thicker than flake.

Strand refers to a piece of wood that look like flake. It is very long (compared to their width) and a uniform thickness throughout the length of the bar.

Planer Shaving means a piece of wood in the shape of a small plate with non-uniform thickness throughout the length of the bar. It is thicker at one end and the other end is certain. The radial plume and tend to bend it. The planing of wood planing machine with a rotating cutter head .

4. General Requirements

4.1 The product shall, at the least, be certified to or pass tests for desirable product characteristics specified in the Thai Industrial Standard (TIS) for that product, according to the following list:

- Thai Industrial Standard No. 1427 Fiber-cement flat sheets (TIS 1427)
- Thai Industrial Standard No. 878 Cement Bonded Particleboards : High Density (TIS 878)
- Recognized international or national standards
- Sampling methods for products shall comply with the product's relevant standards

Verification Method

The manufacturer shall submit evidence indicating the right to bear Thai Industrial Standard symbols for that product or submit test results for the minimum desirable product characteristics according to the Thai Industrial Standard for that product or submit test results according to tests specified in recognized international or national standards.

4.2 The manufacturing, transportation, and waste disposal of the product shall comply with the relevant national laws and regulations.

Verification Method

The applicant shall submit one of the following documents:

1. License or evidence to prove that manufacturing, transportation, and post-industrial waste disposal comply with national laws and regulations.
2. Certification of ISO14001 from the manufacturer.

5. Environmental Requirements

5.1 Fiber cement board

5.1.1 Fiber used as raw material shall comply with the following requirements;

- 1) shall not be cut from natural forest, or
- 2) shall be from agricultural waste or domestic, or
- 3) shall be industrial fiber waste, or
- 4) shall be made of post-consumer waste paper or pre-consumer waste paper, but the content of 1), 2) or 4) shall be more than 10% of the produced fiber

Verification Method

The manufacturer shall submit the following documents indicating compliance with the requirement no. 5.1.1.

Source of Fiber	Evidence
Plantation wood, fast-growing wood, or material remnants	Evidence indicating the source of raw materials, which could be factory reports, the amount of material remnants, or receipts from the purchase of material remnants, plantation wood, or fast-growing wood. All evidence shall be signed by the authorized party from the source of wood.
Paper waste, agricultural waste, domestic or industrial waste	1) Declaration of fiber using ratio 2) Copies of the legal land titles, signed by the managing director or authorized person of the manufacturer.

5.1.2 Raw materials shall not contain the following substances

- 1) Asbestos
- 2) Phosphogypsum
- 3) Formaldehyde
- 4) Pentachlorophenol
- 5) Carcinogenic agents as defined in group 1 and 2a of the International Agency for Research on Cancer (IARC)
- 6) Prohibited substances categorized as hazardous according to the Hazardous Substance Act. B.E. 2535

Verification Method

The manufacturer shall submit a declaration document on the list of raw materials used for the manufacturing of the applicable products (requirement no. 5.1.2), sign by the managing director or authorized person of the manufacturer.

5.1.3 Paints applied to the product shall not contain the following substance

- 1) Lead, cadmium or its oxide, chromium (+6) or its oxide in manufacturing process. However, a combined contaminant of those substances shall not exceed 0.01 mg/l
- 2) Volatile organic compounds (VOCs) shall be less than 100 mg/l
- 3) Organic solvents include aromatic solvents, halogenated solvent, and formaldehyde in manufacturing process
- 4) Ammonium and its compounds shall be less than 2% by weight

Verification Method

The manufacturer shall submit the following evidences indicating that the paint used for manufacturing of the applicable products are compliant with the requirement no. 5.1.3.

- (1) Test results of heavy metals in paint, which shall be conducted by the following methods or other recognized international /national equivalent methods.
 - ISO 3856/4 for Cadmium or its oxides
 - ISO 3856/5 for Chromium or its oxides
 - TIS 285-27 for Lead (analyzed by atomic absorption spectroscopy)
 - TIS 285-28 for Mercury (analyzed by atomic absorption spectroscopy)
- (2) Test results of VOCs in paint, which shall be conducted by ASTM D3960 or other recognized international /national equivalent methods
- (3) Declaration document indicating that aromatic hydrocarbons, halogenated solvents, or formaldehyde are not used in the manufacturing of the applicable products.
- (4) A test result or declaration document indicating that the content of ammonia in the product is not exceed 2% by weight

Remark: All submitted documents shall be signed by the managing director or authorized person of the manufacturer.

5.1.4 Instructions of storage, transport, installation and disposal of the product shall be provided.

Verification Method

The manufacturer shall submit a manual which contains instruction for storage, transport, installation, and disposal method of the products (Requirement No.5.1.4).

5.2 Wood cement board

5.2.1 Wood/wood chips used as raw material shall comply with the following requirements;

- 1) wood/wood chips shall not be cut from natural forest
- 2) material can be agricultural, domestic, or industrial waste

Verification Method

The manufacturer shall submit the following evidences that the sources of wood/wood chips used for manufacturing of the applicable products are compliant with the requirement no5.2.1.

Source of Fiber	Evidence
Plantation wood, fast-growing wood, or material remnants	Evidence indicating the source of raw materials, which could be factory reports, the amount of material remnants, or receipts from the purchase of material remnants, plantation wood, or fast-growing wood. All evidence shall be signed by the authorized party from the source of wood.
Agricultural waste, domestic or industrial waste	Copies of the legal land titles, signed by the managing director or authorized person of the manufacturer

5.2.2 Raw materials shall not contain the following substances

- 1) Asbestos
- 2) Phosphogypsum
- 3) Formaldehyde
- 4) Pentachlorophenol

- 5) Carcinogenic agents as defined in group 1 and 2a of the International Agency for Research on Cancer (IARC)
- 6) Prohibited substances categorized as hazardous according to the Hazardous Substance Act. B.E. 2535

Verification Method

The manufacturer shall submit a declaration document indicating that the raw materials used for manufacturing of the applicable products are compliant with the requirement no. 2.2.2.2. The document shall be signed by the managing director or authorized person of the manufacturer.

5.2.3 Paints applied to the product shall not contain the following substance

- 1) Lead, cadmium or its oxide, chromium (+6) or its oxide in manufacturing process. However, a combined contaminant of those substances shall not exceed 0.01 mg/l
- 2) Volatile organic compounds (VOCs) shall be less than 100 mg/l
- 3) Organic solvents include aromatic solvents, halogenated solvent, and formaldehyde in manufacturing process
- 4) Ammonium and its compounds shall be less than 2% by weight

Verification Method

The manufacturer shall submit the following evidences that the paint used for manufacturing of the applicable products are compliant with the requirement no. 5.2.3.

- (1) Test results of heavy metals in paint, which shall be conducted by the following methods or other recognized international /national equivalent methods.
 - ISO 3856/4 for Cadmium or its oxides
 - ISO 3856/5 for Chromium or its oxides
 - TIS 285-27 for Lead (analyzed by atomic absorption spectroscopy)
 - TIS 285-28 for Mercury (analyzed by atomic absorption spectroscopy)
- (2) Test report of VOCs in paint, which shall be conducted by ASTM D3960 or other recognized international /national equivalent methods
- (3) Declaration document indicating that aromatic hydrocarbons, halogenated solvents, or formaldehyde are not used in the manufacturing of the applicable products.
- (4) A test result or declaration document indicating that the content of ammonia in the product is not exceed 2% by weight.

Remark: All submitted documents shall be signed by the managing director or authorized person of the manufacturer.

5.2.4 Instructions of storage, transport, installation and disposal of the product shall be provided.

Verification Method

The manufacturer shall submit a manual which contains instruction for storage, transport, installation, and disposal method of the products (Requirement No.5.2.4).

6. Testing and certification

6.1 Testing

6.1.1 The laboratory shall be operated by the government or under governmental control as defined by clause 5 of the Industrial Standard Act B.E. 2511 (and its addenda) or certified by TIS. 17025 or ISO/IEC 17025.

6.1.2 Test results

6.1.2.1 Test results shall comply with testing methods defined in this document. If “comparable test methods” are submitted, the following documents shall be submitted with the test results:

- 1) Declaration letter from the laboratory verifying that the test methods are comparable to the methods defined in this document.
- 2) Method validation documents which enable unequivocal scientific verification that the testing methods and requirements defined in this document have been met.

6.1.2.2 Test results shall have been issued no more than 1 year following the application date.

6.2 Declaration letter to verify compliance with Green Label requirements

6.2.1 Shall have been issued no more than 1 year following the Green Label application date.

6.2.2 Shall be signed by the authorized directors and have the company seal affixed (if relevant).

6.3 In the event that referenced test methods or standards in this document have been modified, the latest version of test method or standard will be considered.