



Green Label Product

Wood-like Plastic

(TGL-121-16)

Revision Approved on

29 November 2016

Thailand Environment Institute (TEI)
16/151 Muang Thong Thani, Bond Street, Bangpood,
Pakkred, Nonthaburi 11120 Thailand
Phone: 0-2503-3333 ext. 303, 306, 315, 316, 329
Fax: 0-2504-4826-8

Website: <http://www.tei.or.th/greenlabel/>

TGL-121-16

Wood-Like Plastic

1. Background

-

2. Scope

This product specification covers recycled wood made from plastic or plastic mixed with scrap waste wood or agricultural waste. These products can be used as rigid polyvinyl chloride foam sheets, decking, decorative such as wall battens, wall brow, eaves, etc.

3. Definitions

-

4. General Requirements

-

5. Product Environmental Requirements

5.1. Products must meet the following criteria:

5.1.1 Products produced from polyvinylchloride (PVC) must meet the following criteria¹⁰

- 1) Its residual vinyl chloride monomer (RVCM) must not exceed 1 mg/kg in PVC resin
- 2) Clean technology manufacturing processes must be implemented wherein
 - 2.1) Chlorine shall not be sourced from production plants using graphite anodes, mercury cells or asbestos diaphragms
 - 2.2) VCM shall be sourced from non-mercury production processes.

Verification method

The applicant shall submit the following documents:

1. The test result verifying that vinyl chloride monomer follows the environmental requirement no. 5.1.1 with the test methods such as ASTM D3749¹¹ or ISO 6401¹² or equivalent standard.
2. Letter of declaration that mercury is not used in the chlorine and VCM production

¹⁰Green star PVC Credit-Australia.

¹¹ASTM D 3749: Standard Test Method for Residual Vinyl Chloride Monomer in Poly (Vinyl Chloride) Resins by Gas Chromatographic Headspace Technique.

¹²ISO 6401: Plastics - Poly (vinyl chloride) -Determination of residual vinyl chloride monomer -- Gas-chromatographic method.

- 5.1.2 Products made from polyethylene and polypropylene shall come from the sources that do not use mercury in the resin production process.

Verification method

The applicant shall submit declaration letter to declare that Products made from polyethylene and polypropylene are come from the sources that do not use mercury in the resin production process.

- 5.2. The additives used in the product manufacturing process must not be specified in Group 1, Group 2A or Group 2B of International Agency for Research on Cancer (IARC)¹³

Verification method

The applicant shall submit a declaration letter specifying that the product is in compliance to requirement no.5.2 as well as submitting Chemical Safety Data Sheets (SDS) of additives used in the manufacturing process

- 5.3 The manufacturing process of the product must not use the following preservative substances¹³

- 1) Tributyltin oxide (TBTO) and Creosote oil
- 2) The substances specified in class 1a (Extremely Hazardous) and class 1b (Highly Hazardous) specified by the World Health Organization (WHO)

Verification method

The applicant shall submit a declaration letter that can be believed that the product is in compliance to requirement no.5.3 as well as submitting Chemical Safety Data Sheets (SDS) of additives used in the manufacturing process

5.4 The released amount of formaldehyde, volatile organic compounds, and toluene (after 7 days) for products used inside the building must meet the criteria¹³ as in Table 2

Table 2 The released amount of formaldehyde, volatile organic compounds, and toluene (after 7 days) for products used inside the building

Chemicals	Amount (mg/m ² ·kg)
Formaldehyde	≤ 0.12
Volatile organic compounds	≤ 0.4
Toluene	≤ 0.080

¹³Korea Eco-Label: Wood and Plastic composite products.

Verification method

The applicant shall submit a letter for declaration of compliance by the test methods according to ISO 16000-9¹⁴, ISO 16000-3¹⁵, 16000-6¹⁶ or ISO 16000-11¹⁷ or ASTM D 5116¹⁸ or other equivalent standards.

¹⁴ ISO 16000-9: Indoor air-Part 9 : Determination of the emission of volatile organic compounds - Emission test chamber method.

¹⁵ ISO 16000-3: Indoor air-Part 3 : Determination of formaldehyde and other carbonyl compounds - Active sampling method.

¹⁶ ISO 16000-6: Indoor air-Part 6 : Determination of volatile organic compounds in indoor and test chamber air by active sampling on Tenax TA sorbent, thermal desorption and gas chromatography using MS/FID.

¹⁷ ISO 16000-11: Indoor air-Part 11 : Determination of the emission of volatile organic compounds - Sampling, storage of samples and preparation of test specimens.

¹⁸ ASTM D 5116: Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.

5.3 Heavy metals or heavy metal compounds and flame retardants in the products must according to the criteria as Table 3.

Table 3 Specified criteria for heavy metals or heavy metal compounds and flame retardants in the products¹⁹

Chemicals	Heavy metals or their compounds				Flame retardants	
	Pb	Cd	Hg	Cr ^{6+*}	PBB	PBDE
Chemical contents (ppm)	≤1,000	≤100	≤1,000	≤1,000	≤1,000	≤1,000

Remark: If the sum of chromium (Cr) is less than or equal to 1,000 (mg / kg), assume that it meets the criteria of hexavalent chromium (Cr⁶⁺)

Verification method

The applicant shall submit a declaration letter of compliance by the test methods according to IEC 62321²⁰ or other equivalent standards.

¹⁹ Directive 2011/65/EU of The European Parliament and of The Council.

²⁰ IEC 62321: Electro technical products - Determination of levels of six regulated substances (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, polybrominateddiphenyl).

5.4 There are instructions for post-consumer waste management on the information documents or websites of products such as do not burn post-consumer waste or specify the plastic type symbol according to the Thai Industrial Standard, symbols of recycled plastics TIS 1310.

Verification method

The applicant shall submit a declaration letter to clarify that the product is in compliance to requirement no.5.6 as well as submitting information documents or evidences to declare the existence of the website has specified instructions for managing the post-consumer waste.

5.5 Packaging (if any)

5.7.1 Plastic packaging must meet one of the following criteria

- 1) Packaging shall be certified by Thai Green Label for plastic packaging (TGL-105) or
- 2) There is a symbol indicating the plastic type according to the standard industrial products. Symbols for new recycled plastics as TIS 1310 or have an acronym indicating types of plastic according to ISO 1043 or ISO 11469, except in the case of stretch film using for wrapping the product does not have to show the plastic symbol.

Verification method

The applicant shall submit the following documents:

1. The certificate of Thai Green Label for plastic packaging or
2. A declaration letter indicating that the plastic packaging has been symbolized according to Thai Industrial Standard, TIS 1310 for recycling plastics or marked according to plastic symbols and abbreviated terms given in ISO 1043²¹ or ISO 11469²² and submit a photo of plastic packaging to confirm the existence of plastic identification. The document shall be stamped with the company hallmark and signed by authorized personnel of the packaging manufacturer or
3. A declaration letter indicating that stretch film is used for wrapping the product

5.7.2 Paper packaging shall meet one of the following criteria:

- 1) Paper packaging shall be certified by Thai Green Label (TGL-104) or
- 2) Paper packaging shall contain recycled pulp and/or pulp made from agriculture residues as specified in product environmental requirements no. 5.1 of Thai Green Label for Paper packaging (TGL-104) as shown in annex 1.

Verification method

The applicant shall submit either of the following evidences:

1. The certificate of Thai Green Label for paper packaging (TGL-104) or
2. An evidence indicating that the paper packaging is made from recycled pulp and/or pulp made from agriculture residues with specified in product environmental requirements no. 5.1 of Thai Green Label for Paper packaging (TGL-104). The document shall be stamped with the company hallmark and signed by authorized personnel of the paper packaging manufacturer.

²¹ISO 1043: Plastics - Symbols and abbreviated terms - Part 1: Basic polymers and their special characteristics.

²²ISO 11469: Plastics - Generic identification and marking of plastics products.

- 5.7.3 Inks, paints or pigments used for printing on the packaging or labeling on the packaging are permitted to have concentrations of mercury, lead, cadmium and hexavalent chromium due to impurity and contamination not exceeding 0.01% (≤ 100 mg/kg) by weight.

Remark: In the event that paper packaging or plastic packaging was Thai Green Label certified, the applicant did not submit the evidence as specified in the criteria no. 5.7.3.

Verification method

The applicant shall submit either of the following evidences:

1. A declaration letter together with test reports for mercury, lead, cadmium and hexavalent chromium concentrations, issued by ink, paint or pigment manufacturer according to the test method specified in IEC 62321 standard or
2. Test reports for mercury, lead, cadmium and hexavalent chromium concentrations using test method specified in IEC 62321 or other equivalent standards.