



Green Label Product Fitting (TGL-119-16)

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Table of Contents

1	Background	3
2	Scope	3
3	Definitions	3
4	General requirements	4
5	Environmental requirements	4
6	Testing and certification	8

TGL-119-16 Fitting

1 Background

Plastic fittings are used together with plastic pipes. This product allows easier and convenient curve structure installation. They are flexible, acid and alkali resistant with smooth surface. Using plastic fittings along with metals also increases fittings durability and expands products' lifespan. However, fittings production and application significantly affect the environment and consumers. For instance, the production process may release harmful substance and heavy metal concentration may affect the users.

Green label specification of polyvinyl chloride, polyethylene and polypropylene fittings for polyvinyl chloride, polyethylene and polypropylene pipes will focus on minimizing the product's environmental impact, extending products' lifespan and ensuring consumer safety. To achieve these objectives, raw materials for fittings' manufacturing will be remodeled to limit the use of heavy metals. Symbols will be required on the products to promote recycling and waste segregation. This measure aims to encourage both manufacturers and consumers to participate on environmental impact reduction.

2 Scope

These green label specifications cover plastic fitting made of polyvinylchloride polyethylene and polypropylene, including plastic fittings with external thread and internal thread made of metal.

3 Definitions

- 3.1 Plastic** refer to polyvinyl chloride unplasticized, polyethylene and polypropylene plastic.
- 3.2 Fitting** refer to plastic fittings that are used with pressure and pressure relays pipe such as drinking water pipes, pipelines, agricultural applications, sewage and air.
- 3.3 Letter for Declaration of Compliance** refers to a document issued by the applicant or the manufacturer to ensure compliance to product environmental requirements for respective products.
- 3.4 Certificate** refers to a document issued by a certification body, which has been accredited by the Office of the National Standardization Council (ONSC) or International Accreditation Forum (IAF).
- 3.5 Authorized director** refers to the person who has been authorized to sign on behalf of a juristic person under Civil and Commercial code.

4 General requirements

- 4.1 The product must be certified or test as followed is one of the following;
- 4.1.1 Be certified or the test result as according to test methods defined is Thai Industrial Standard, TIS 1131.
 - 4.1.2 Be certified or the test result as according to test methods defined is Thai Industrial Standard, TIS 1410.
 - 4.1.3 Be certified or the test result as according to test methods defined is Thai Industrial Standard, TIS 2678.
 - 4.1.4 Be certified or the test result as according to test methods defined is international standard or equivalent national standard.

Verification Method

The applicant must submit one of the following;

1. Thai Industrial Standard no. TIS 1131 or TIS 1410 or TIS 2678 certificate or international standard certificate or equivalent national standard.
2. Test result as according to test methods defined is Thai Industrial Standard no. TIS 1131 or TIS 1410 or TIS 2678 certificate or international standard certificate or equivalent national standard.

- 4.2 Manufacturing process, transportation and industrial waste management must comply with the related Laws and Regulations, or the factory must be certified ISO14001².

Verification Method

The applicant must submit one of the following;

1. Permit or evidence of compliance of the manufacturing process, transportation and waste management with related Laws and Regulations.
2. ISO14001 Environmental management system certificate.

5 Environment requirements

- 5.1 The product must be as following;
- 5.1.1 Monomer resin used in produced a fitting shall be sourced from non-mercury production processes.
 - 5.1.2 Polyvinyl chloride resin used in produced a fitting must have the residual vinyl chloride monomer (RVCM) not exceed 1 mg/kg.

Verification Method

The applicant must submit the declaration letter verify that monomer resin use in production process follows the environmental requirements no 5.1.1. For the fittings produced from polyvinyl chloride, the applicant must submit certificate and the test result verifying that vinyl chloride monomer follows the environmental requirement no. 5.1.2 with the test methods such as ASTM D3749⁴ or ISO 6401⁵ or equivalent standard.

- 5.2 The internal and external thread made from metal must have chemical properties as in the following table 1.

Table 1 Chemical properties of metal.

Type of metal	Component	Requirement
Bronze	Tin (Sn)	4.0 to 6.0 (%)
	Lead (Pb) not excess	4.0 (%)
	Zinc (Zn)	4.0 to 7.0 (%)
	Copper (Cu)	82 to 87 (%)
Brass	Copper (Cu)	56 to 64 (%)
	Lead (Pb) not excess	3.0 (%)
	Iron (Fe) not excess	0.35 (%)
	Zinc (Zn)	Other component

Verification Method

The applicant shall submit the test results of heavy metal a contain in thread which use in produced process a fitting according to the test method ASTM E 478-08 or JIS H 1051 or JIS H 1012 or equivalent standard.

- 5.3 Plastic fitting must not contain heavy metal and its composition e.g. cadmium, mercury, lead and hexavalent chromium.

The concentration of heavy metals and its composition due to impurities or traces deriving from raw materials not exceeding the requirement in Table 2.

Table 2 The required volumes of Heavy metal and its compositions.

Heavy metals	Contamination volumes (mg/kg)
Cadmium (Cd)	≤100
Mercury (Hg)	≤1,000
Lead (Pb)	≤1,000
Hexavalent chromium (Cr ⁶⁺)	≤1,000

Verification Method

The applicant shall submit test results of cadmium, mercury, lead and hexavalent chromium, the approved test methods are IEC 62321-3-1⁶ or IEC 62321-4⁷ or IEC 62321-5⁸ or IEC 62321-7-2 or other equivalent test methods.

- 5.4 The product must not contain the following flame retardants;
- 5.4.1 Polybrominated biphenyl (PBB)
 - 5.4.2 Polybrominated diphenyl ether (PBDE)
 - 5.4.3 Short Chain Chlorinated Paraffin (SCCP) C=10~13 atom and chlorine concentration is 50% or more

In the event of any conflict arising, the original criteria in Thai is to be final authority

Verification Method

The applicant shall submit the declaration letter verifying that the product does not contain of flame retardant as specified in environmental requirement no 5.4. In the case that flame retardant is used, the applicant must attach a document listing the flame retardant.

5.5 The product shall display and specify the type of plastic as following;

5.5.1 The product shall display a phrases as a following, “รีไซเคิลได้ ห้ามเผา” or “**Recyclable/Do not burn**”.

In the case of the text cannot be displayed on the product itself, the text “ผลิตภัณฑ์สามารถนำกลับมารีไซเคิลได้ ห้ามเผา” should be displayed on the packaging.

5.5.2 The product shall be display type of plastic as following standard TIS 1310 or ISO 1043standard or ISO 11469 standard.

Verification Method

The applicant must submit a declaration letter verifying that the product or packaging display the text as stated in environmental requirement no 5.5.1 or displayed type of plastics as stated in environmental requirement no 5.5.2 and additional evidences such as product sample or pictures to confirm that the text and type of plastic are clearly.

5.6 Paper packaging shall meet one of the following criteria:

- 1) Paper packaging shall be certified by Thai Green Label (TGL-104).
- 2) Paper packaging shall contain recycled pulp and/or pulp made from agriculture residues as specified in environmental requirements no. 5.1 of Thai Green Label for paper packaging (TGL-104) as shown in Table 3.

Table 3 The content of recycled pulp and/or pulp made from agriculture residues.

Product categories	Content of recycled pulp and/or pulp made from agriculture residues (%by weight)
Shock-absorbing material	≥ 70
Tray	≥ 75
Cardboard box	≥ 70
Corrugated cardboard box	≥ 60
Mail envelope	≥ 20
Kraft paper bag	≥ 50
Molded products	≥ 90
Other packaging product	≥ 40

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. The declaration letter and evidence indicating that the paper packaging is made from recycled pulp and/or pulp made from agriculture residues with specified content given in Table 3. The document shall be stamped with the company hallmark and signed by authorized personnel of the paper packaging manufacturer.

5.7 Inks, paints or pigments used for printing on the packaging or labeling on the packaging are permitted to have the 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 certified by Thai Green Label, the applicant need not to submit the evidence as specified in the requirement no. 5.7.

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 suppliers.
2. Test reports for mercury, lead, cadmium and hexavalent chromium concentrations using test method as following;
 - 2.1 Mercury concentration, test according to ISO 3856-7 or ASTM D 3624 or IEC 62321 or equivalent standards
 - 2.2 Lead concentration, test according to ISO 3856-1 or ISO 6503 or ASTM D 3335 or IEC 62321 or equivalent standards
 - 2.3 Cadmium concentration, test according to ISO 3856-4 or ASTM D 3335 or IEC 62321 or equivalent standards
 - 2.4 Hexavalent chromium concentration, test according to ISO 3856-5 or IEC 62321 or equivalent standards

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. 17025¹ or ISO 17025².

6.1.2 Test results

6.1.2.1 Shall be the results of the testing methods defined in this document.

6.1.2.2 If “comparable test methods” are applied, 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.

6.1.2.3 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 specification

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

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

¹TIS 17025 General Requirements for the Competence of Testing and Calibration Laboratories.

²ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories.

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