Green Label Product
Cement and Cement products
(TGL-99-R1-24)

Revision Approved On
2 October 2024

Thailand Environment Institute (TEI)
16/151 Muang Thong Thani, Bond Street, Bangpood, Pakkred, Nonthaburi
11120 Thailand
Phone: 0-2503-3333 ext. 521-529
Fax: 0-2504-4826
Website: https://greenlabel.tei.or.th

Table of Contents

TGL-99-R1-24
Cement and Cement products

1. Background

Cement is important in the public utility and construction sector. Currently, it is mainly used as construction materials for buildings, houses, roads, bridges and barrage. Cements are categorized according to its property and use. Proper environmental management of cement is needed in order to prevent environmental impacts.

Therefore, in order to promote environmental management, the Green Label criteria for Cement and Cement Product was developed. The criteria focuses on reducing environmental impacts and consumer safety by controlling emissions of greenhouse gases and other substances in production process as well as limiting the use of heavy metals used in ink or pigments for packaging. Moreover, the criteria promotes recyclable packaging and proper disposal of packaging.

2. Scope

This criteria covers cement and cement products. However, it does not include Portland cement under TIS No. 15.

1. Cement Group

1.1. Cement for structural work

- Hydraulic cement, TIS No. 2594
- Portland pozzolan cement, TIS No. 849
- Portland blast-furnace slag cement, TIS No. 2587

1.2. Cement for construction and plastering

- Mixed cement, TIS No. 80
- Masonry cement, TIS No. 2595

2. Cement Product Group

- Mortar for masonry, TIS No. 598
- Mortar for plastering, TIS No. 1776
- Masonry mortar for lightweight concrete block, TIS No. 2706
- Plastering mortar for lightweight concrete, TIS No. 2735
- Skim coat mortar, TIS No. 3056
- Self-leveling mortar, TIS No. 3057
- Dry premixed concrete, TIS No. 3202
- Dry premixed concrete for marine environment, TIS No. 3203

3. Definition

3.1 **Hydraulic Cement:** Cement that sets and hardened after it has been mixed with water or when it is under water

3.2 **Masonry Mortar:** A mixture obtained from combining binder materials and fine aggregates, which may also include additives or colors. When it is to be used, it must be mixed with water to achieve the desired consistency. It is used for bonding or fixing masonry units together.

3.3 **Plastering Mortar:** A mixture obtained from combining binder materials and fine aggregates, which may also include additives or colors. When it is to be used, it must be mixed with water to achieve the desired consistency. It is used for plastering masonry walls or concrete surfaces, either in single or multiple layers, to achieve the specified thickness.

3.4 **Admixtures:** Materials other than fine aggregates, cement, or water that are added before or during the mixing of mortar to alter its properties. Admixtures are classified into chemical and mineral types.

3.5 **Clinker:** Crystals made from sintering many substances together. The main chemical component is hydraulic calcium silicate.

3.6 **Letter for Declaration of Compliance:** A certification document issued by the applicant or the manufacturer that it meets the special requirements specified in the Green Label requirements for the applied product.

3.7 **Certificate:** A document issued by a certification body, which has been accredited by the National Accreditation Council (NAC) or other accreditation body under the IAF (International Accreditation Forum) agreement.

3.8 **Legally Authorized person:** A person authorized to sign under the Civil and Commercial Law.

3.9 **Legally Authorized person** refers the person authorize to signed under Civil and Commerce Law

4. General requirements

4.1 The product must be certified according to the relevant industrial product standards related to the product for which certification is requested, or pass testing for the required characteristics according to the relevant industrial product standards or international standards (ISO), or national standards such as ASTM, JIS, DIN, EN.

Verification method

Applicants shall submit one of the following documents:

1. A license to manufacture or import industrial products (for products that comply with mandatory TIS standards).
2. A license to display the relevant industrial product standard mark or test results demonstrating the required characteristics according to the relevant industrial product standards for the product being submitted for Green Label certification (for products that comply with general TIS standards).

4.2 Manufacturing, transportation and post-industrial waste disposal shall comply with national laws and regulations or the manufacturer shall be accredited by ISO 14001.

Verification method

Applicant shall submit one of the following documents:

1. License or evidences to prove that manufacturing, transportation, and post-industrial waste disposal complies with national laws and regulations.
2. Certification of ISO 14001 from the manufacturer

Remark: For imported products, the manufacturing facility must be certified to ISO 9001 (Quality Management System) and ISO 14001 (Environmental Management System)

4.3 Manufacturing facilities required to prepare Environmental Impact Assessment (EIA) reports must implement all measures specified within their Environmental Impact Assessment report.

Verification method

The applicant shall submit reports demonstrating continuous implementation of environmental impact mitigation measures and environmental quality monitoring in full compliance with prescribed measures and regulations for the past 2 consecutive years.

5. Environmental requirements

5.1 Greenhouse Gas Emissions

5.1.1 Cement Group for Structural Work

The greenhouse gas emission during manufacturing process shall not exceed 800 kg CO_2eq per tonne of product.

5.1.2 Cement Group for Construction and Plastering Work

The greenhouse gas emission during manufacturing process shall not exceed 600 kg CO_2eq per tonne of product

5.1.3 Cement Products (Mortar)

The greenhouse gas emission during manufacturing process including raw material acquisition shall not exceed 230 kg CO_2eq per tonne of product

Remark: The equation for calculating greenhouse gas emissions is based on the latest IPCC version, and Emission Factors are based on data from the Thailand Greenhouse Gas Management Organization (Public Organization).

Verification method

The applicant shall submit one of the following documents:

1. A third-party certified results of greenhouse gas emission value calculation (third-party must be registered with Thailand Greenhouse Gas Management Organization)
2. Certification of Carbon Reduction Label and Evidence of Carbon Footprint Information Published on the Website of the Thailand Greenhouse Gas Management Organization (Public Organization)

5.2 Paper or plastic packaging must include instructions for managing the packaging after use. This information should be displayed on the packaging or included in product documentation, such as an invoice or product information sheet. At a minimum, the instructions should cover the following points:

1. Cement bags can be reused.
2. Cement bags can be as fuel in authorized electricity-generating facilities, as approved by government authorities.
3. Return the cement bag to a collection service provider or local government.

Verification method

The applicants shall submit a declaration letter ensuring that the paper or plastic packaging includes instructions for managing cement bags after use, along with a picture of the text or documentation showing that the instructions meet the requirements specified in Requirement 5.2.

5.3 Ink, dye or pigments used for printing or labels on packaging shall not contain heavy metals and heavy metal compounds. In cases where contamination from heavy metals (lead, mercury, and chromium hexavalent) occurs due to impurities or contamination from raw materials in packaging shall not exceed 0.01% (≤100 mg/kg) by weight.

Verification method

The applicant shall submit one of the following documents:

1. A declaration letter from ink manufacturer or supplier, including test results for lead, mercury, cadmium and chromium hexavalent , according to IEC 62321 testing standards or

2. Test results for mercury, lead, cadmium, and chromium hexavalent in the ink, paint, or pigments used for printing on the packaging or attached labels, tested according to IEC 62321 or any other method capable of determining these levels. The testing laboratory must be ISO 17025 accredited or registered with Thailand Green Label.

6. Testing and Certificate

6.1 Testing

6.1.1 The laboratory with the competence of testing and calibration by TIS 17025 Standard or ISO/IEC 17025 with the relevant scope or laboratories that comply with the criteria and conditions for laboratory registration (RR-203) will be accepted.

6.1.2 Testing result

6.1.2.1 The testing report that the method specified in the green label requirements.

6.1.2.2 In case, the applicant submits the testing report with according to other test methods equivalent to the method specified in the green label requirements, the applicant shall submit the document as follow;

1) The certified signature document of the apply product from the laboratory that equivalent with test method standard specified in the green label requirements.

2) The method validation document of the product specified in the green label requirements.

6.1.2.3 The test report must not be more than 1 years up to the date of application for green label certification.

6.2 Declaration letter to verify compliance with Green label requirements

6.2.1 The declaration letter shall not exceed 1-year duration since the apply date

6.2.2 The declaration letter by legally authorized person and stamped with the company hallmark (if any)