Green Label Product
Reinforcement and Deformed Bars
(TGL-125/1-24)

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1. Background

Steel for construction is a vital material widely used in the building and renovating structures. Steel for reinforcing concrete typically comes in the form of bars, rods, or mesh, embedded to work collaboratively with the concrete in withstanding various forces acting upon it. Considering the potential impacts throughout the product's lifecycle reveals significant environmental effects stemming from production, transportation, usage, and end-of-life management.

Therefore, establishing green label criteria for concrete reinforcing steel emphasizes the importance of eliminating toxic substances, reducing greenhouse gas emissions, and optimizing energy management throughout production and product maintenance. It also promotes recycling practices to conserve resources.

2. Scope

This criteria covers round bars and deformed bars.

3. Definition

3.1 Scrap: Pieces of metal waste generated both during the production process and after use, such as scrap metal from building demolition or metal scraps from vehicles.

3.2 Post-Consumer Waste: Products that have become waste or have been used.

3.3 Post-Industrial Waste: Waste or by-products generated during the manufacturing or processing stages within a facility before reaching the consumer.

3.4 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.

3.5 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.

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

4. General requirements

4.1 The product must be certified according to the industrial product standard, specifically TIS 20 for concrete reinforcing steel: round bars, or TIS 24 for concrete reinforcing steel: deformed bars.

Verification method
Applicants shall submit documentation of the license to manufacture or import industrial products according to the standards TIS 20 for concrete reinforcing steel: round bars, or TIS 24 for concrete reinforcing steel: deformed bars (rebar).

4.2 Manufacturing, transportation and post-industrial waste disposal shall comply with national laws and regulations or the manufacturer shall be accredited by ISO14001.

Verification method
The applicant shall submit one of the following documents:
1. License or evidences to prove that manufacturing, transportation, and post-industrial waste disposal comply with national laws and regulations.
2. Certification of ISO14001 from the manufacturer

Remark: In the case of imported products, the manufacturing facility must be certified according to the following standards:

- ISO 9001 (Quality Management System)
- ISO 14001 (Environmental Management System)
- ISO 50001 (Energy Management System)
- TIS 18001 or OHSAS 18001 (Occupational Health and Safety Management System)

5. Environmental requirements

5.1 The product must have a radiation level not exceeding five times the background radiation of the respective area. In cases where the level exceeds this limit, the radiation concentration must not exceed the safety threshold as stipulated in the announcement by the Nuclear Energy for Peace Commission regarding safety standards, 2019.

Verification method

1. The applicant must submit a standard operating procedure document that outlines the steps for measuring radiation for the product.
2. The applicant must provide evidence or documentation demonstrating that radiation levels in the product have been measured, with records of these measurements dating back at least six months.
3. The radiation measuring instruments used for assessing radiation levels must be calibrated by a government agency that provides calibration services for radiation measurement devices. The calibration results must be no older than one year from the date of issuance by the calibration provider.

5.2 The coatings used on the product must contain the following substances within the specified limits:

- Chromium Hexavalent: no more than 1,000 mg/kg
- Cadmium: no more than 100 mg/kg
- Mercury: no more than 1,000 mg/kg
- Lead: no more than 1,000 mg/kg

Verification method

The applicant must submit test results for the heavy metal content in the product coatings, including:

1. Test results for chromium hexavalent content according to the testing method in ISO 3856-5 **or** another method capable of measuring hexavalent chromium levels.
2. Test results for cadmium content according to the testing method in ISO 3856-4 **or** ASTM D3335, **or** another method that can measure cadmium levels.
3. Test results for mercury content according to the testing method in ISO 3856-7 **or** ASTM D3624, **or** another method capable of measuring mercury levels.
4. Test results for lead content according to the testing method in ISO 3856-1 **or** ASTM D3335, **or** another method that can measure lead levels.

The testing must be conducted by a laboratory accredited under standard ISO/IEC 17025 **or** a laboratory registered in accordance with the criteria and conditions for laboratory registration (RR-203).

5.3 Construction steel products must be made from at least 90% (by weight of the steel content) of scrap sourced from post-consumer products or leftover scrap from the manufacturing process.

Verification method

The manufacturer shall submit a declaration letter ensuring that the product complies with the criteria outlined in Requirement 5.3. This letter must be stamped with the company's official seal and signed by the legally authorized person as per the company's registration certificate.

5.4 Fresh water usage in the production process must not exceed 15 cubic meters per ton of steel produced, considering only the fresh water that enters the steel production process (melting and rolling processes).

Verification method

The manufacturer shall submit a credible evidence demonstrating that fresh water usage in the production process does not exceed 15 cubic meters per ton of steel produced, considering only the fresh water that enters the production process. This document must be stamped with the company's official seal and signed by the legally authorized person as per the company's registration certificate.

5.5 Specific energy consumption in the production process of concrete reinforcing steel, specifically during the steel rolling process—including energy used by furnaces, rolling mills, and other ancillary operations—must not exceed 2,100 megajoules per ton of steel product (total energy). This value should be calculated based on a 12-month average.

Verification method

The applicant shall submit evidence or declaration letter demonstrating compliance with the criteria outlined in Requirement 5.5. These documents must be stamped with the company's official seal and signed by the legally authorized person as per the company's registration certificate. Examples include energy consumption reports or records.

5.6 Carbon dioxide emissions from steel production must not exceed 1.00 t CO_2eq per ton of steel produced.

Remark: The greenhouse gas emission calculation formula references IPCC 2006, and the Emission Factors reference 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 Footprint Reduction.

5.7 Ink, dye or pigments used for printing on labels shall not contain heavy metals including chromium hexavalent, cadmium, mercury, and lead.
In cases where contamination with heavy metals occurs in the product due to impurities or contamination from raw materials, it must not exceed 0.01% by weight (100 milligrams per kilogram) (if relevant).

Verification method

The applicant shall submit test results for heavy metals in the inks, dyes, or pigments used for printing on labels, including:

1. Test results for the concentration of hexavalent chromium according to the testing method in standard ISO 3856-5 **or** other methods capable of testing for hexavalent chromium.
2. Test results for the concentration of cadmium according to the testing method in standard ISO 3856-4 **or** ASTM D3335 **or** other methods capable of testing for cadmium.
3. Test results for the concentration of mercury according to the testing method in standard ISO 3856-7 **or** ASTM D3624 **or** other methods capable of testing for mercury.
4. Test results for the concentration of lead according to the testing method in standard ISO 3856-1 **or** ASTM D3335 **or** other methods capable of testing for lead.

The testing must be conducted by a laboratory accredited under standard TIS 17025 **or** ISO/IEC 17025 **or** a laboratory registered in accordance with the criteria and conditions for laboratory registration (RR-203).

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)