



# **Green Label Product Faucets and Water Saving (TGL-11-R2-11)**

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## TGL-11-R2-11

### Faucets and Water Saving

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#### 1. Background

Faucets and accessories used in toilet formally applied to another sanitary appliances such as wash basins, sinks, urinals and closets. The application of those mentioned appliances consume water in significant way. From the study of water consumption in Bangkok Metropolitan, Faculty of engineering, Chulalongkorn university, it is demonstrated that the average water consumption in Bangkok is about 320-340 liters per capita per day. When the consumption of water supplied from Metropolitan Waterworks Authority is divided in three main areas which are in residential area as of 49.5% and 49.8% was supplied in business, state enterprise, governmental, industrial and service area. Furthermore, the rest 0.6% is used in public service and another area.

In general, at pressure 0.1 megapascal or 1 kg/cm<sup>2</sup>, the flow rate of manual faucets for sinks and wash basins, showers, Rinsing sprays and flush valves for urinals which have been sold in Thailand shall not exceed than 6, 9, 7-9 litres per minute and 2 litres per time, respectively as follow announcement in the Government gazette (vol. Royal Decree, book 119 section 95 a ; September 27, 2002.)

According to its consideration as insufficient resource in the near future, water should take into account as a limited natural resource. Thus, green label criteria for water-economizing faucet will reinforce sustainability of water utilization. Particularly, for automatic faucet which can save water more than 40 percent compared with manual faucet.

#### 2. Scope

This criterion includes all faucets as defined in the following sub-categories:

1. Faucets for sinks
2. Faucet for wash basins
3. Self-closing faucets for wash basins
4. Automatic faucets for sanitary ware
5. Shower units
6. Rinsing sprays
7. Flush valves for urinals
8. Flush valves for toilet

#### 3. Definitions

Faucet for sinks refers to a device for turning on and off the water at the sink with spout.

Faucet for wash basins refers to a device for turning on and off the water used to wash basin.

Self-closing faucets for wash basins refers to a device for turning on the water at the sink manually and turn off the water automatically.

Automatic faucet for sanitary ware refers to a device for turning the water on and off automatically.

Shower units refer to a device used in conjunction with the faucet for the bathtub or shower or water heater.

Rinsing sprays refers to a device used to wash in the toilet.

Flush valves for urinals refer to devices that are compatible with the male urethra and used for turning on and off the water to wash the men's urinal.

Flush valves for toilet refer to a device used in conjunction with a toilet seat and toilet flat. Squatting to turn on the water and to wash the toilet.

#### **4. General requirements**

4.1 The product shall be certified by Thai Industrial Standard or pass the pass the product quality specification tests under relevant Thai Industrial Standard for that product type defined as the following table.

**Table 1: List of Industrial Standards**

<b>Product</b>	<b>TIS number</b>	<b>Standard Title</b>
1. Faucets for sinks	2067	Faucets for Sanitary Wares : Environment Requirements ; Water Savings
	1277	Faucets for sinks
2. Faucet for wash basins	2067	Faucets for Sanitary Wares : Environment Requirements ; Water Savings
	1278	Faucet for wash basins
3. Self-closing faucets for wash basins	2067	Faucets for Sanitary Wares : Environment Requirements ; Water Savings
	1377	Self-closing faucets for wash basins
4. Automatic faucets for sanitary wares	2147	Automatic faucets for sanitary wares
5. Shower units	2066	Shower units : Environment Requirements ; Water – Savings
	1187	Shower units
6. Rinsing sprays	1497	Rinsing sprays
7. Flush valves for urinals	1094	Flush valves for urinals
8. Flush valves for toilet	1093	Flush valves for toilet

**Verification method:**

The applicant shall declare the license to display industrial standard mark on the product or present test results according to specified requirements in the industrial standard related to product (according to Table 1), or present test results according to acceptable international standard(s) or acceptable national standard(s)

4.2 Production, transportation, and post-industrial waste disposal shall comply with the national laws and regulations.

**Verification method:**

The applicant shall submit documents or declare evidence that the production, transportation, and post-industrial waste disposal is in compliance with national laws and regulations.

## 5. Product Environmental Requirements

5.1 The product shall meet water volume requirement as the following;

5.1.1 Faucets for sinks

- Shall have the water flow rate not more than 4.8 L/min. (cubic decimetre/min.) at pressure of  $0.1 \pm 0.01$  megapascal.

5.1.2 Faucet for wash basins

- Shall have the water flow rate not more than 4.8 L/min. (cubic decimetre/min.) at pressure of  $0.1 \pm 0.01$  megapascal.

5.1.3 Self-closing faucets for wash basins

- Shall have the average water flow rate not more than 0.32 L and the average time for water flow not less than 2 second at pressure 0.1, 0.2, 0.3 megapascal.

5.1.4 Automatic faucets for sanitary wares

- Shall have the water flow rate not more than 5 L/min. (cubic decimetre/min.) at pressure of  $0.1 \pm 0.01$  megapascal.

5.1.5 Shower units

- Soft line shower unit shall have the water flow rate not more than 6.5 L/min. (cubic decimetre/min.) and not less than 0.5 L/min at pressure of  $0.1 \pm 0.01$  megapascal.
- Solid shower unit shall have the water flow rate not more than 7.0 L/min. (cubic decimetre/min.) and not less than 0.5 L/min at pressure of  $0.1 \pm 0.01$  megapascal.

5.1.6 Rinsing sprays

- Shall have the water flow rate not more than 5.0 L/min. (cubic decimetre/min.) at pressure of  $0.1 \pm 0.01$  megapascal.

5.1.7 Flush valves for urinals

- Size 15 shall have the water flow rate not more than 1.6 L/flush. (cubic decimetre/flush.) at pressure of  $0.15 \pm 0.01$  megapascal.
- Size 20 shall have the water flow rate not more than 3.0 L/flush. (cubic decimetre/flush.) at pressure of  $0.15 \pm 0.01$  megapascal.

5.1.8 Flush valves for toilet

- Shall have the water flow rate not more than 4.8 L/min. (cubic decimetre/min.) at pressure of  $0.1 \pm 0.01$  megapascal.

**Verification method:**

The applicant shall submit the result for test of water volume according to specified requirements in Thai Industrial Standard related to product (according to Table 1), or present test results according to acceptable international standard(s) or acceptable national standard(s)

5.2 The plastic part of product shall be symbolized to indicate the type of plastic used according to Thai Industrial Standard: *Recycling Plastics* (TIS 1310<sup>1</sup>) or an abbreviation for type of plastic used according to ISO 1043<sup>2</sup>or ISO 11469<sup>3</sup>.

**Verification method:**

The manufacturer or the applicant shall submit a declaration letter verifying that plastic components are symbolized to indicate the type of plastic used according to Thai Industrial Standard: *Recycling Plastics* (TIS 1310) or existence of abbreviation by type of plastic used according to ISO 1043-1 or ISO 11469. The declaration letter shall be signed by an authorized director of the manufacturer or of the applicant's company with company seal affixed.

5.3 Ink or pigments used for printing or labels on product are permitted to have total concentration due to impurities or traces deriving from raw materials not exceeding 1,000 mg/kg each for mercury (Hg), lead (Pb), and Hexavalent chromium (Cr<sup>6+</sup>) and 100 mg/kg for cadmium (Cd).

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<sup>1</sup> Thai Industrial Standard: *recycling plastics* (TIS 1310)

<sup>2</sup> ISO 1043: Plastics –Symbols and abbreviated terms

<sup>3</sup> ISO 11469: Plastics –Generic identification and marking of plastic products

**Verification method:**

The applicant shall declare test reports of mercury, lead, cadmium and hexavalent chromium using the following test methods

1. Mercury (Hg) content by ISO 3856-7<sup>4</sup> or ASTM D 3624<sup>5</sup>
2. Lead (Pb) content by ISO 3856-1<sup>6</sup> or ASTM D 3335
3. Cadmium (Cd) content by ISO 3856-4<sup>7</sup> or ASTM D 3335
4. Hexavalent Chromium (Cr<sup>6+</sup>) content by ISO 3856-5<sup>8</sup>

or IEC 62321 or other equivalent method under national (e.g. JIS); or regional (e.g. EN); or international standards.

or The applicant shall declare the evident that your products are not contained with heavy metal and signed by an authorized director of the manufacturer or the applicant's company with company seal affixed.

5.4 Display the suggestion to consumer about the installation, appropriate maintenance, and the volume of water use on product.

**Verification method:**

The applicant shall declare the evident that present the suggestion to consumer about the installation, appropriate maintenance, and the volume of water use on product.

## 5.5 Packaging

### 5.5.1 Paper packaging

Paper packaging shall be made from Thai Green Label certified paper (TGL-8) or passed product environmental requirements for the type of paper used under TGL-8 (except for packaging requirement).

<sup>4</sup> ISO 3856-7: Paints and varnishes - Determination of soluble metal content - Part 7: Determination of mercury content of the pigment portion of the paint and of the liquid portion of water-dilatable paints.

<sup>5</sup> ASTM D 3624: Standard Test Method for Low Concentrations of Mercury in Paint.

<sup>6</sup> ISO 3856-1: Paints and varnishes - Determination of soluble metal content -Part 1: Determination of lead content.

<sup>7</sup> ISO 3856-4: Paints and varnishes - Determination of soluble metal content - Part 4: Determination of cadmium content.

<sup>8</sup> ISO 3856-5: Paints and varnishes - Determination of soluble metal content - Part 5: Determination of chromium hexavalent content of the pigment portion of the liquid paint or the paint in powder.

**Verification method:**

The manufacturer or the applicant shall submit a certificate of Thai Green Label for Paper (TGL-8) or declare a test report for paper packaging according to product environmental requirements under TGL-8.

*If the applicant wishes to declare a test report under other equivalent standards not mentioned in this Green Label, then the applicant shall submit the following documents together with the test report:*

- 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.*

5.5.2 Plastic packaging must be symbolized by type of plastic used according to Thai Industrial Standard: *Symbols for Recycling Plastics* (TIS 1310) or identified the type of plastic used by abbreviated terms under ISO 1043or ISO 11469.

**Verification method:**

The manufacturer or the applicant shall declare evidence and submit a declaration letter to verify that the plastic packaging is symbolized by type of plastic used according to TIS 1310 for Recycling Plastics or existence of abbreviation by type of plastic used according to ISO 1043 or ISO 11469. The declaration letter shall be signed by an authorized director of the manufacturer or of the applicant's company with company seal affixed.

5.5.3 Ink or pigments used for printing or labels on packaging are permitted to have concentration of mercury (Hg), lead (Pb), cadmium (Cd) and Hexavalent chromium (Cr<sup>6+</sup>) due to impurities or traces deriving from raw materials in packaging not exceeding 0.01% (100 ppm) by total weight.

Verification method

The applicant shall submit test reports of Mercury, Lead, Cadmium and Hexavalent chromium using the following test methods;

1. Mercury (Hg) content by ISO 3856-7<sup>9</sup> or ASTM D 3624<sup>10</sup> or IEC 62321 or equivalent test method
2. Lead (Pb) content by ISO 3856-1<sup>11</sup> or ASTM D 3335<sup>12</sup> or IEC 62321 or equivalent test method
3. Cadmium (Cd) content by ISO 3856-4<sup>13</sup> or ASTM D 3335 or IEC 62321 or equivalent test method
4. Hexavalent Chromium (Cr<sup>6+</sup>) content by ISO 3856-5<sup>14</sup> or IEC 62321 or equivalent test method

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<sup>9</sup> ISO 3856-7: Paints and varnishes - Determination of soluble metal content - Part 7: Determination of mercury content of the pigment portion of the paint and of the liquid portion of water-dilatable paints.

<sup>10</sup> ASTM D 3624: Standard Test Method for Low Concentrations of Mercury in Paint.

<sup>11</sup> ISO 3856-1: Paints and varnishes - Determination of soluble metal content -Part 1: Determination of lead content.

<sup>12</sup> ASTM D 3335: Standard Test Method for Low Concentrations of Lead, Cadmium, and Cobalt in Paint.

<sup>13</sup> ISO 3856-4: Paints and varnishes - Determination of soluble metal content - Part 4: Determination of cadmium content.

<sup>14</sup> ISO 3856-5: Paints and varnishes - Determination of soluble metal content - Part 5: Determination of chromium hexavalent content of the pigment portion of the liquid paint or the paint in powder.

## 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.