



Eco Mark Product Category No.116

“Water-saving Equipment Version 2.2”

**Japan Environment Association
Eco Mark Office**

1. Environmental Background

Water evaporates from the ground and the sea through solar energy to turn out to be clouds or rain and comes back to the surface of the earth. The water back to the ground surface penetrates into the underground or turns out to be rivers to flow into the sea. In this way, water is moving among sea, air and land.

The water circulation carries heat and materials in its circulation process. At the same time, it conserves biodiversity and greatly contributes to ensuring of favorable natural environment. On the other hand, human beings take water from rivers and underground to use it for drinking and agriculture. They also create artificial water circulation systems to discharge purified sewages to public service water areas to recycle the water in downstream areas.

Human beings are closely engaged in these water circulation systems and enjoy a lot of benefits from them for keeping their existence and supporting daily life. On the other hand, they are giving negative impacts on the environment. Water-related environmental problems include unstable river water flows (urban-type flood damages and decrease of normal flows), ground subsidence due to excessive pumping up of groundwater and deterioration of water quality.

In order to harmonize with the natural environment and the sustainable development of human society coexisting with the ecosystem and maintain water resources to ensure the sufficient amount of water throughout the year without water shortage, we have to take general steps to improve the water environment such as efficient use of water and improvement of cultivation functions of water resources.

Efficient use of water alleviates the degree of the above problems. At the same time, it is effective for preventing the global warming by reducing the volume of electric energy used in providing water.

As the construction of water resources facilities including estuaries and dams have been promoted, a certain level of water supplies is already ensured in Japan. More development of such facilities is difficult because it could give various damages to the surrounding environments. Precipitations tend to be on the decline in a year short of water. Therefore, it is necessary to consider diversity of water sources including utilization of water in many stages, recycling of water and use of rain water as a new water source in order to ensure stable water use. Saving of water is also meaningful for such a purpose that we can leave limited water resources for future generations.

This product category includes “water-saving equipment” which, as products (excluding systems), incorporates environmental considerations, in order to reduce the environmental impact through effective utilization of water. The purpose also includes the spread of such water using equipment and the enhancement of people's awareness of water saving.

It should be noted, however, that peoples' good awareness of water savings is most effective for effective utilization of water. Awareness of water users should be enhanced.

2. Applicable Products

This product category covers the equipment listed in Attachment 1 and used in households and enterprises (offices), selected from “Valves and Pipe Fittings”, “Sanitary Equipment Components”, etc. based on the Classification of Standard Goods in Japan.

3. Terminology

- Time regulating performance: Performance capable of automatically stopping water when water has been discharged for a preset time
- Volume regulating performance: Performance capable of automatically stopping water when a preset volume of water has been discharged
- Self-closing: Construction that makes water discharge automatically stop when a person's hand has left from under the faucet
- Flush water volume: Actual water volume that flows at one-time flushing
- Water-saving type water closet: Water closet that allows flushing at 6.5l or less
- Automatic flush equipment with water flow control system: Sensor-type flush equipment with a function to automatically control flush water flow according to use frequency and duration
- Combination faucet (thermostat type): Combination faucet incorporating a mechanism which supplies mixture of hot water and cold water at a discharge temperature set by a temperature regulating knob, by automatically regulating the ratio of hot water and cold water even at temperature and pressure fluctuations
- Combination faucet (single-lever type): Combination faucet which can turn water discharge on and off, and regulate the discharge rate and discharge temperature, by means of manipulating a single lever
- Time-control faucet: Faucet that automatically stops water flow when water has been discharged for a preset time
- Faucet with volume-regulating mechanism: Faucet which has a volume-regulating function that makes water discharge stop when a preset volume has been discharged
- An automatic faucet: Water tap which automatically stops water discharge of water, with built-in optoelectronic sensor, solenoid valve, etc. Automatic faucets are available for hot water and cold water.
- Self-closing faucet: Water tap which makes water stop automatically after a predetermined volume has been discharged when the operating mechanism is released
- Water-saving top: Top designed to save water in a water tap. Water discharge from a water tap equipped with a water-saving top is significantly smaller than that from a water tap equipped with an ordinary top, at the same lever opening degree. Fixed type tops are included.

- Flow-control valve: Control valve which can always maintain a fixed flow rate even if the inlet or outlet pressure changes. Flow-control valves are available either with a fixed flow rate or with a variable flow rate. Flow-control valves utilize the kinetic pressure of water, a spring, etc. Attention should be paid to the accuracy of constant flow and allowable pressure.
- Built-in faucet with showerhead with function of temporary water stoppage at hand: Showerhead with switching function for water to stop temporarily or to be outflow by switch, etc. on the showerhead, or built-in faucet with the showerhead on the above.

4. Certification Criteria

4-1 Environmental criteria

- (1) Regarding water-saving performance, the water-saving and structural criteria stipulated in Attachment 2* shall be met. Special conditions for use such as location, etc to have water-saving effect, if any, shall be given as information.
- (2) In the manufacturing of products, local environmental laws and regulations as well as agreements on preventing air pollution, water contamination, noise, odor and emission of hazardous materials shall be observed.
- (3) Parts which are replaceable shall be able to be installed and removed by normal household tools.
- (4) Parts shall be replaceable, and methods of replacement shall be made known to users by means of operation manuals or the like. Supply of spare parts shall be secured for 10 years or more (6 years or more for electric parts) after their manufacturing is terminated. However, this item is not applicable for the product which is composed of single part (or single material).
- (5) For the product which is composed of several different materials and parts (plastic, glass, metals, etc.), design of the equipment shall consider the possibility of separating raw materials by their types of materials when they are used and collected as waste.
- (6) Plastic materials used in products and packages shall not include polymer and organic halogen compound including halogen element as a formula constituent. However, this section shall be excluded for a drainage connection part of the water closet and urinal, a resin disconnect trap for urinal and a shower hose attached to a faucet, and fluorine compound (fluorine rubber, etc.) which is on the basis to be used in water, and electric parts such as an outlet.
In addition, the product shall not use flame-retardant agents. However, for parts with electronic/electric device, flame-retardant agents other than polybromobiphenyl (PBB), polybromodihethylene (PBDE) and short-chain chlorinated paraffin (with 10-13 chained Cs and 50% or higher in chlorine concentration) are approved to use.
- (7) The possibility of saving resources, recycling materials, and reducing the load on incineration shall be taken into consideration in designing the packaging of the equipment.

- (8) In case that the product has the part which is outside the scope of “water supply equipment” in Water Work Law (toilet bowl ware, etc.), as for harmful substances dissolved out from the corresponding part of the product, these shall conform to the requirements for all specific harmful substances given in Attachment 2; cadmium, lead, hexavalent chromium, arsenic, total mercury, PCB, benzene, selenium, boron and fluorine, which are provided in the detailed enforcement regulations (Ministry of the Environment Ordinance No.29, December 26, 2002).
- (9) Maintenance instructions shall be clearly described in instruction manuals, on product labels or in pamphlets as information for proper handling.
- (10) Energy consumption for a toilet seat with hot water bidet shall not be less than the standard energy consumption efficiency regulated in “Judgment Standards etc. concerning Improvement of Capacity of Electric Toilet Seats for Manufacturers etc.” in “Law concerning the Rational Use of Energy (energy saving law)”.
- (11) Antibacterial processes shall be according to Attachment 1 “Use of Antibacterial Agent to Water-saving Equipment”.

4-2 Quality Criteria

- (12) The quality shall meet Article 5 Government ordinance of Water Work Law “Standard for structure of domestic water supply equipment”. Japanese Industrial Standards and other requirements, if applicable, shall also be met. In addition, quality control in a manufacturing stage shall be sufficient.

5. Certification Procedure

Regarding adaptation to each standard, it shall be described to attached certificate forms with related documents attached to an application form.

- (1) Regarding environmental criterion 4-1 (1), a document issued by a third party or one’s company certifying the conformity with the water-saving criteria per Attachment 2, and also a document certifying the conformity with the construction criteria per Attachment 2 shall be submitted.
- (2) Regarding environmental criterion 4-1 (2), a self-certificate issued by the manager of the equipment manufacturing factory shall be submitted. The self-certificate shall state that the location environmental laws, regulations and agreement applicable to the location where the factory exists have been followed for five years.
- (3) Regarding environmental criterion 4-1 (3) and (4), instruction manuals and other documents certifying the conformity shall be submitted.
- (4) Regarding environmental criterion 4-1 (5) and (6), a list of parts and materials used for the equipment, issued by manufacturers, shall be submitted.
- (5) Regarding environmental criterion 4-1 (7), the Attached Certificates shall specifically describe the packaging condition and packaging materials. (Drawings or photograph may be used as supplements.)

- (6) Regarding environmental criterion 4-1 (8), result documents of test conducted by third party test institutions or public organizations shall be submitted.

However, if all raw materials do not include chemicals concerned as formula constituents, the submission of documents certified by parts suppliers and an applicant that chemicals concerned are not included shall be possible.

- (7) Regarding environmental criterion 4-1 (9), instruction manuals, a product label or a pamphlet describing maintenance instructions of an applicable product shall be submitted.
- (8) Regarding environmental criterion 4-1 (10), test results, etc. which indicate the test value, shall be submitted.
- (9) Regarding environmental criterion 4-1 (11), name of chemical substances, CAS No., MSDS, test results which fulfill the conditions described in the Attachment 1 and label design plan, etc. shall be submitted.
- (10) Regarding environmental criterion 4-2 (12), documents certifying the conformity with Article 5 Government ordinance of Water Work Law “Standard for structure of domestic water supply equipment”, as well as Japanese Industrial Standards (JIS) and other requirements.

6. Other Requirements

- (1) Products are classified by the type of equipment and brand name as per Attachment 1. Classification by size is not applied.
- (2) Environmental information for each product category shall be indicated below the mark. The location and details of the Eco Mark to be indicated shall be submitted when applying for Eco Mark product certification and use. The environmental information indicated shall be aligned to the left and enclosed in a rectangular box and be described as “Water-saving equipment”. The stocks of certified products produced during the licensing period are exceptional and allowed to use the former statements below the mark and its certification numbers for a year from the date on which the contract is renewed as a basic rule.



Eco Mark Certification Number (Only number can be approved)
No. XXXXXXXXX
XXXX Co., Ltd. (Name of contract person)

- (3) The Eco Mark shall be used in accordance with “Eco Mark Use Regulations Article 7” separately prescribed based on the “Guidelines for Eco Mark Program Implementation”.
- (4) In principle, the products to be applied shall be free of “flame retardant”, “antibacterial agent” materials and “biodegradable plastic” indication. When using these materials reasoning special circumstances, however, the products shall satisfy the provisions contained in the “Guidelines for Eco Mark Program Implementation” concerning “flame retardant”, “antibacterial agent” and “indication of biodegradable plastic”. Specifically, the use of these materials shall be described in the “Application Form for Eco Mark Certification and Usage” with documents stipulated in the form to be attached.

Established on: August 1, 2005
Revised: June 27, 2006 (Version 2.1)
Revised: October 19, 2006 (Version 2.2)
Term of validity: July 31, 2010

These certification criteria for the product category will be revised when necessary.

Attachment 1

Applicable category		Equipment corresponding to water saving (by application classification)	Page number in Attachment 2
Toilet-related equipment	A	Water-saving type water closet (low tank type)	8
	B	Water-saving type water closet (flush-valve type)	8
	C	Water-saving type water closet (flush-valve built-in type)	9
	D	Built-in urinal with automatic washing device with flow control	10
	E	Automatic washing device with flow control for urinal	10
Faucet-related equipment and value-added function for water saving	F	Water-saving top	11
		Water tap with built-in water-saving top	
	G	Flow-control valve	12
		Faucet with built-in flow-control valve	
	H	Aerator cap	12
		Faucet with aerator function	
	I	Flow-control valve	13
	J	Combination faucet (thermostat type)	14
	K	Combination faucet (single lever type)	14
	L	Faucet with time-control mechanism	15
	M	Faucet with volume-control mechanism	15
	N	Self-closing faucet	16
	O	Automatic tap (with self-generation function)	16
		Automatic tap (AC100V type)	
P	Showerhead with function of temporary water stoppage at hand	17	
	Built-in faucet with showerhead with function of temporary water stoppage at hand		

Attachment 2

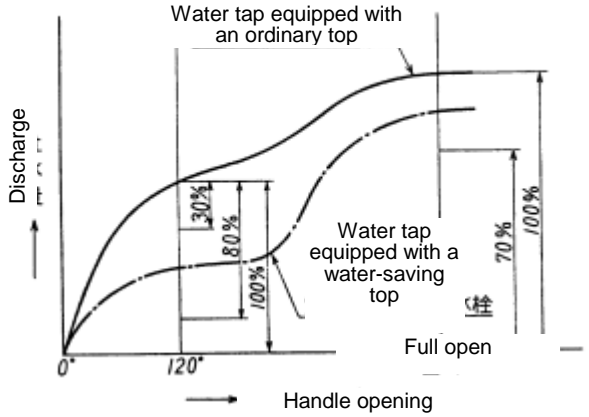
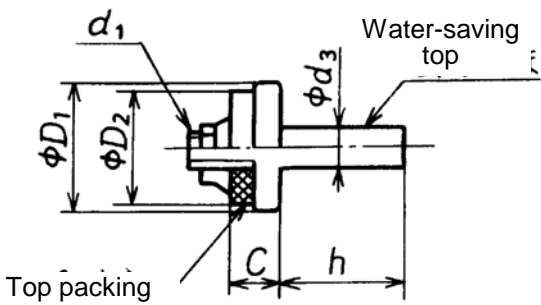
Product		A. Water-saving type water closet (low tank type)
Environmental criteria: water-saving criteria per 4-1 (1)	Water saving criteria	(1) Washing water shall be 6.5 liters or less. Washing water shall be measured at water pressure of 0.2 MPa.
	Structural criteria	(1) The flushing and discharging performance per JIS A5207 shall be met. (2) The transportation performance specified in the “Attachment 2-I” shall be met.
Points other than water saving		Stool and low tank are handled as a complete set.

Products		B. Water-saving type water closet (flush-valve type)
Environmental criteria: water-saving criteria per 4-1 (1)	Water-saving criteria	(1) Deviation in discharge volume at one flush action (in the condition that the lever is kept pressed) shall be within $\pm 15\%$ of the discharge volume set for a supply pressure of 0.2 MPa. (2) Flush water volume shall be 6.5 liters or less. The measurement of flush water volume shall be conducted at the pressure of 0.2 MPa.
	Structural criteria	(1) The structure shall be easy to control discharge volume. (2) The water-saving flush valve shall supply a fixed volume of water even when the lever is kept depressed. (3) The spout performance shall meet the requirements of JIS B 2061. (4) The washing and the discharge performance shall meet the requirements of JIS A5207. (5) The transportation functions specified in the “Attachment 2-I” shall be met by the set of the flush valve and the stool.
Points other than water saving		Stool and flush valve are handled as a complete set.

Products		C. Water-saving type water closet (flush-valve built-in type)
Environmental criteria: water-saving criteria per 4-1 (1)	Water-saving criteria	(1) Flush water volume shall be 6.5 liters or less. The measurement of flush water volume shall be conducted at the pressure of 0.2 MPa.
	Structural criteria	(1) The washing and the discharge performance shall meet the requirements of JIS A5207. (2) The transportation functions specified in the "Attachment 2-I" shall be met by the set of the flush valve and the stool.
Points other than water saving		Stool and flush valve are handled as a complete set.

Products		D. Built-in urinal with automatic washing device with flow control
Environment-related criteria: water-saving criteria per 4-1 (1)	Water saving criteria	(1) The flush water volume shall be 2.5 liters or less. The measurement of flush water volume shall be conducted at the pressure of 0.2 MPa. (2) The water volume shall be controlled depending on time of use and continual use. (Data shall be submitted at application.)
	Structural criteria	(1) It shall have washing/discharge performance according to JIS A 5207. (2) In case there is no use of urinal for a while, the structure shall be to conduct automatically washing for the purpose to protect sealing water of urinal trap.
Points other than water saving and electric energy consumption		(1) The battery shall not employ cadmium, lead or mercury. This requirement may not be applied if a recover and recycling system for used batteries has been established.

Products		E. Automatic washing device with flow control for urinal
Environment-related criteria: water-saving criteria per 4-1 (1)	Water saving criteria	(1) The flush water volume shall be 2.5 liters or less. The measurement of flush water volume shall be conducted at the pressure of 0.2 MPa. (2) The water volume shall be controlled depending on time of use and continual use (Data shall be submitted at application.)
	Structural criteria	(1) It shall be set in the urinal which is corresponding to JIS A 5207, and shall have washing/discharge performance according to JIS A 5207. (2) In case there is no use of urinal for a while, the structure shall be to conduct automatically washing for the purpose to protect sealing water of urinal trap.
Points other than water saving and electric energy consumption		(1) The battery shall not employ cadmium, lead or mercury. This requirement may not be applied if a recover and recycling system for used batteries has been established.

Products	F. “Water-saving top” or “Water tap with built-in water-saving top”	
Environmental criteria: water-saving criteria per 4-1 (1)	Water saving criteria	<p>(1)The water tap equipped with a water-saving top shall have the following water discharge performance (according to JIS B2061):</p> <ul style="list-style-type: none"> - When the handle is opened 120 degrees, the discharge rate shall be more than 20% but not be more than 70% of that when the water tap equipped with an ordinary top (water saving 30% or more). - When the handle is fully opened, the discharge rate shall be not less than 70%. - Discharge water pressure shall be set to 0.1 MPa. <p style="text-align: center;">Diagram of handle opening and water discharge</p> 
	Structural criteria	<p>(1) A top which can save water, with a specially designed valve-seat fixing nut or any other means. A water tap equipped with such a water-saving top.</p> <p>(2) A replacing water-saving top shall be capable of easily replacing an installed top.</p> 
Points other than water saving and electric energy consumption		(1) No electric energy shall be used.

Products		G. “Flow-control valve” or “Faucet with built-in flow-control valve”
Environmental criteria: water-saving criteria per 4-1 (1)	Water saving criteria	(1) When the handle is fully opened, the proper flow shall be in the range of 5-8 liters/min at a water pressure of 0.1 MPa and more and at 0.7MPa and lower.
	Structural criteria	(1) A flow-control valve, or faucet with such flow-control valve built in, which does not allow the water discharge to exceed a certain limit. (2) Branching after the point of installation shall not be made. A flow-control valves shall be installed after branching. One flow-control valves shall correspond to one faucet. (3) An instruction manual shall describe the installation condition by its purpose to allow usage that meets the enough flow volume (hand washing, face washing, tableware washing, etc. for this category).
Points other than water saving and electric energy consumption		(1) No electric energy shall be used.

Products		H. “Aerator cap” or “Faucet with aerator function”
Environmental criteria: water-saving criteria per 4-1 (1)	Water saving criteria	(1) At a water pressure of 0.1 MPa or more and at a water pressure of 0.7 MPa or less, the discharge shall not be more than 80% of that of the tap without the aerator cap. (2) The discharge shall not be less than 5 liters/min at a water supply pressure of 0.1 MPa with a fully opened lever.
	Structural criteria	(1) Faucet equipped with an aerator cap which can save water by mixing air into water flow.
Points other than water saving and electric energy consumption		(1) No electric energy shall be used.

Products		I. Flow control valve								
Environmental criteria: water-saving criteria per 4-1 (1)	Water saving criteria	(1) At a water pressure of not less than 0.1 MPa and not more than 0.7 MPa, the outflow from the tap with its handle (lever) fully opened shall be not more than 80% of the outflow from the same tap without the flow control valve installed.								
		(2) The outflows at the installed place with the handle (lever) fully opened and at a water pressure of 0.1 MPa shall not be less than the following values in the table "Correct outflows at equipment installation locations."								
		Table: Correct outflow at equipment installation location								
		<table border="1"> <thead> <tr> <th>Installation locations</th> <th>Correct outflow (l/min)</th> </tr> </thead> <tbody> <tr> <td>Washroom</td> <td>5</td> </tr> <tr> <td>Kitchen</td> <td>5</td> </tr> <tr> <td>Shower room</td> <td>8</td> </tr> </tbody> </table>	Installation locations	Correct outflow (l/min)	Washroom	5	Kitchen	5	Shower room	8
		Installation locations	Correct outflow (l/min)							
	Washroom	5								
Kitchen	5									
Shower room	8									
(3)"Equipment installation locations" which satisfy the condition in (2) shall be described in operation manuals and printed matter for advertisements, such as booklets or catalogues, etc.										
Structural criteria	(1) A valve that can save water when installed between the water stop valve and the spout.									
Points other than water saving and electric energy consumption	(1) No electric energy shall be used.									

Products		J. Combination faucet (thermostat type)
Environmental criteria: water-saving criteria per 4-1 (1)	Water saving criteria	None
	Structural criteria	<p>(1) A combination faucet with a built-in mechanism for supplying water at a temperature preset with a temperature-setting dial, which is controlled with hot water and cold water mixed, in which the mixing ratio is controlled automatically even if the pressure or temperatures of the hot water or cold fluctuates. (Based on JIS B2061 Faucets, ball taps and flush valves.)</p> <p>(2) The discharge water temperature when the temperature indicating dial is set to approximately 40°C shall be within ± 3 °C of the set temperature. (Based on JIS B2061 Faucets, ball taps and flush valves.)</p> <p>(3) The discharge water temperature shall be within ± 3°C of a temperature set to approximately 40°C when the primary water pressure is fluctuated. (Based on JIS B2061 Faucets, ball taps and flush valves.)</p> <p>(4) The thermostat-type combination faucet shall be equipped with a safety device to prevent high-temperature water discharge. (Based on JIS B2061 Faucets, ball taps and flush valves for Water Supply.)</p> <p>Note: Method for testing the automatic temperature control performance for (2) and (3) shall be in accordance with 8.1.10 of JIS B 2061.</p>
Points other than water saving and electric energy consumption		(1) No electric energy shall be used.

Products		K. Combination faucet (single lever type)
Environmental criteria: water-saving criteria per 4-1 (1)	Water saving criteria	None
	Structural criteria	<p>(1) A combination faucet which can turn water discharge on and off, and control the discharge rate and discharge temperature, by means of manipulating a single lever. (Based on JIS B2061 Faucets, ball taps and flush valves.)</p> <p>(2) There shall be a function that allows water flow to be controlled easily such as a multistage system.</p>
Points other than water saving and electric energy consumption		(1) No electric energy shall be used.

Products		L. Faucet with time-control mechanism
Environmental criteria: water-saving criteria per 4-1 (1)	Water saving criteria	None
	Structural criteria	(1) A faucet which has a time-regulating function (2) A faucet with volume-control mechanism shall meet the following requirement: $(A - B)/A \leq 0.05$ where: A: setting time B: actual time
Points other than water saving and electric energy consumption		(1) No electric energy shall be used.

Products		M. Faucet with volume-control mechanism
Environmental criteria: water-saving criteria per 4-1 (1)	Water saving criteria	None
	Structural criteria	(1) A faucet which has a volume-regulating function (that makes water discharge stop when a preset volume has been discharged.) (Based on JIS B2061 Faucets, ball taps and flush valves.) (2) A faucet with volume-control mechanism shall meet the following requirement: $(A - B)/A \leq 0.2$ where: A: set water volum B: actual water volume (Based on JIS B2061)
Points other than water saving and electric energy consumption		(1) No electric energy shall be used.

Products		N. Self-closing faucet
Environmental criteria: water-saving criteria per 4-1 (1)	Water saving criteria	None
	Structural criteria	(1) A faucet which structurally makes water discharged when a lever or a handle is manipulated and stopped automatically after a predetermined volume has been discharged when the lever or handle is released. (2) A self-closing faucet shall be structurally capable of controlling water volume until it is stopped.
Points other than water saving and electric energy consumption		(1) No electric energy shall be used.

Products		O. “Automatic tap (with self-generation function)” or “Automatic tap (AC 100V type)”
Environmental criteria: water-saving criteria per 4-1 (1)	Water saving criteria	(1) At water pressure of 0.1MPa and higher, and at 0.7MPa and lower, discharge volume shall not exceed 5 liters/minute.
	Structural criteria	(1) An automatic tap shall automatically stop water discharge when a person extends his or her hand under the tap (without mechanical contact). (2) An automatic tap shall automatically stop water discharge when the person withdraws his or her hand from under the tap, within 2 seconds, as measured as per the “Attachment 2-II”.
Points other than water saving and electric energy consumption		(1) It shall move by the self-generation function or single-phase current (100V). For the self-generation type, it shall not contain cadmium, lead and mercury for its back-up battery. However, it is not applicable if there is a collection/recycling system after use.

Products		P. “Showerhead with function of temporary water stoppage at hand” or “Built-in faucet with showerhead with function of temporary water stoppage at hand”
Environmental criteria: water-saving criteria per 4-1 (1)	Water saving criteria	None
	Structural criteria	(1) Showerhead with switching function for water to stop temporary or to be outflow by switch, etc. on the showerhead, or built-in faucet with the showerhead on the above. * Used in bathroom only
Points other than water saving and electric energy consumption		(1) No electric energy shall be used.

Annex 1 Use of Antibacterial Agent to Water-saving Equipment

All of the following items from 1 to 3 shall be satisfied if an antibacterial agent is used in an applicable product. This rule shall be adopted regardless of whether or not there is an indication of using antibacterial agent. The terminology relating to anti-bacteria in this rule shall follow JIS Z2801 of the Japanese Industrial Standard (JIS).

1. Products able to add antibacterial agents

Toilet-related products: Water closets (including toilet seats, tanks and hand-washing parts)
Bathroom-related products: Showerheads (excluding spout parts)
Kitchen-related products: Faucet handles and levers

2. Methods of safety evaluation

The following test items shall be satisfied as methods of safety evaluation. Furthermore, chemicals names, CAS No. and Material Safety Data Sheet (MSDS) regarding antibacterial agents with test results of “2. Antibacterial Tests” below shall be prepared and submitted.

Test items

The products concerned shall clear “1. Safety standards” to be mentioned later and shall adapt to “2. Antibacterial tests” and “3. Antibacterial standards”.

“Applicable bacterium”

A test shall be conducted on *staphylococcus aureus* and *E. coli* bacteria described in JIS Z2801.

“1. Safety standards”

Products using antibacterial agents shall not contain chemicals mentioned in the following section as formula constituents*.

- a. Chemicals which are not publicly announced in “Law concerning Examination and Regulation of Manufacture and Handling of Chemical Substances” (Law No. 117 in 1973, hereinafter referred to as “Chemical Examination Law”)
- b. Chemicals designated as “First- and second-class specified chemical substances” and “designated chemical substances” in enforcement ordinances of the Chemical Examination Law
- c. Chemicals designated in “Law for the Control of Household Products Containing Harmful Substances” (Law No. 112 in 1973)
- d. Chemicals designated in “Poisonous and Deleterious Substances Control Law”
- e. In addition to chemicals indicated in the previous each section, chemicals which the Eco Mark Examination Committee regarded as hazardous in conserving the environment

* This is a constituent which is intentionally added to a product for the purpose of giving characteristics. Impure substances which immix a product due to a manufacturing process are excluded.

“2. Antibacterial tests”

Category of safety tests	Safety standards
Acute oral toxicity test (LD50)	1,000mg/kg or higher ^{*)}
Mutagenicity test	Negative
Skin irritation test	Mild stimulant (less than 2.00 of PII value)
Skin sensitization test	Negative
Cytotoxicity test	Judgment along with PII value after calculation of IC value (50%)

*) Elution test if the value is short of standard value

Sample	Product with antibacterial process in a maximum process concentration
Solvent	1. 20% Ethanol solution 2. 4% Acetic acid medium 3. Water
Solution ratio	20ml/g
Method	Measurement of the concentration of antibacterial constituent in solution immersed in 40°C for ten days
Provisional standard value	Less than 1% of antibacterial constituent

The test shall be conducted according to methods in the Food Sanitation Law.

1. Concentration of antibacterial agent included in antibacterial processed products shall be the level or less of which safety is confirmed. However, if safety was confirmed by diluting a progenitor, the concentration level shall be the half or less than the confirmed concentration.
2. The concentration of which no data on safety tests of antibacterial agents such as antibacterial metal can be obtained shall adapt to the safety standards as below.

Table Safety standards of antibacterial processed products (including antibacterial metal and the others)

Safety test of antibacterial processed products	Test method	Safety standard
Tests for materials and elution	Notification No. 370 of 1959 of the Ministry of Health and Welfare	Adaptation to specifications
Skin patch test	Closed-type patch test (48 hours) or Kawai Method (replica method)	Being negative, or negative or sub-negative if conducted by the Kawai Method

“3. Antibacterial standards”

Antibacterial processed products: A product with 2.0 or more of antibacterial activity value, resulting from a test conducted by an antibacterial method and a test method on antibacterial effects (JIS Z2801-2000) for a 5.2 plastic product etc.

3. Indication

Indication on products and in catalogs etc. shall satisfy the following items. In addition, advertisement indication design documents (or drafts) regarding anti-bacteria shall be submitted when applying for accreditation and use of an Eco Mark product.

In term of consumers' life policy in which active disclosure of constituents to consumers is included, “additive names” shall be indicated around the Eco Mark in catalogs and web sites, etc.

The same indication shall be conducted to a product body or an instruction manual by methods including printing, pressing and labeling.

Actual indication example

Antibacterial processed Name of additive: Organic [Large classification] “Imidazole” system [Medium classification] (Thiabendazole [Small classification])

Annex 2

I. Test method for transportation performance of water-saving water closet (low tank type, flush-valve type and flush-valve built-in type)>

1. Test method

Connect a drainage pipe line for testing (*1) as indicated in Figure 1. After saving effective water in a flush low tank, setting feeding pressure at 0.2MPa and filling water in a trap, sink rolled toilet paper (*2) in a water closet reservoir according to the following procedures. Then, flush water and examine a transported distance of the toilet paper in the drainage pipe line for testing. Conduct the test five times.

2. Judgment standard

The average transported distance shall be 10m or longer in three tests of five tests. The maximum and minimum values shall be excluded.

- *1 Drainage pipe line for testing: Pipe line laid by transparent pipe (nominal diameter: 75 ϕ , cross-cut length: 1m+17m) at a drainage incline of 1/100. The joint shall be long radius elbow (abbreviation: LL).
- *2 Rolled toilet paper: Rolled-shape six-ply eightfold toilet paper regulated in JIS P4501

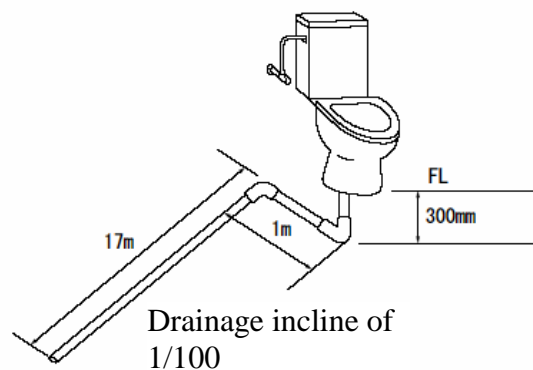


Figure Test device of under-floor drainage type

- Procedures for preparing rolled toilet paper
 1. Prepare a pipe (inside diameter: 40-50mm) for rolled toilet paper (VU40 etc.).
 2. Prepare six pieces of eightfold JIS paper (single) with length of 1m.
 3. Insert a rolled-shape six-ply eightfold toilet paper (see the photograph below) into a pipe for rolled toilet paper.
 4. Touch a tip of the pipe in which the toilet paper has been inserted to the water closet as shown in the figure below and retain as it is for 15 seconds to soak the toilet paper. (See the figure below.)



Photograph: Rolled toilet paper

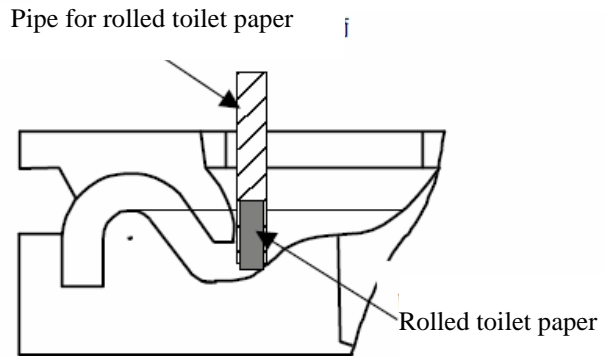


Figure Example of touching the pipe to a water closet

5. Push out the rolled toilet paper from the pipe to leave it sunk in the water closet reservoir.

II. Method for measuring time until water stops

1. Set the water flow of an automatic faucet at an optimum flow.
2. Start filming with camcorder. Put your hand close to the faucet to let water flow. The starting point of the measurement shall be the moment when you pull your hand from the water flow. At the same time, film a stop watch.
3. Analyze the filmed footage by frame advance. The definition of the duration needed to stop the water shall be the time until the main flow stops. At the same time, check a time error from the time measured by stop watch. (Although some drops will be measured at last, the flow volume is likely to be within the ignorable range. Therefore, the drops are not supposed to be counted as duration until the water stops.)
4. As there is a possibility that the durations are different, the time shall be measured five times and the average shall be defined as the duration until water stops.

Stop watch

