

EL652. Vending Machines

[EL652-2001/3/2009-72]



1. Scope

The criteria shall apply to vending machines that sell sold and hot beverages (coffee, canned or bottled beverage or combination of these) for coins, bills or magnetic cards. Vending machines for foods of stickers other than cold than cold and hot beverages are excluded.

2. Definitions

2.1

"Combination vending machine" refers to the vending machines which have the structure to sell coffee and can and/or bottle beverages.

2.2

"Ozone depletion potential (ODP)" refers to the value representing the relative impact of ozone depleting substances when the impact of CFC-11 to ozone depletion is set to be 1.

3. Certification Criteria

3.1 Environmental Criteria

3.1.1

With respect to energy consumption at use stage, the product shall comply with the following requirements.

3.1.1.1

The insulation function of the product shall comply with the following standards.

Class	Type	Temperature change
Heating temp.	Coffee vending machine	Within 10 °C
	Can vending machine	Within 5 °C
Cooling temp.	Vending machine for can or cup beverage	Within 5 °C

Note) The temperature change standards shall not be applied to 'combination vending machines'.

3.1.1.2

The product shall have an energy-saving device such as time switch, automatic sensor or florescent lamp, etc. which can control the power consumption and be easy and simple to use. The time switch shall maintain the accuracy level that does not interfere with its actual use.

3.1.2

With respect to use of chemical substances in manufacturing process and recyclability of the parts of the product at disposal stage, the product shall comply with the following requirements.

Note) This Criteria shall not applied on materials which are exempted from Hazardous Substances Restriction lists on EU Directive 2002/95/EC and lead in solder of printed circuit board (PCB). However, in case of revision of EU Directive 2002/95/EC, this shall follow revised EU Directive which is applicable at the time the application for eco-label certification

3.1.2.1

Lead, cadmium, mercury and their compounds, and hexavalent chromium compounds shall not be used in the product.

3.1.2.2

Content of lead, cadmium, mercury and hexavalent chromium (Cr6+) in the parts of the product shall comply with one of the following requirements.

a) The applicant shall have an appropriate system to control the content of hazardous substances as following requirements.

Item	Pb	Cd	Hg	Cr ⁶⁺
Criteria [mg/kg]	≤ 1000	≤ 100	≤ 1000	≤ 1000

b) Provided that the applicant does not have an appropriate system for the control of hazardous substances, the content of hazardous substances in the parts of the product shall comply with the following requirements.

Item	Pb	Cd	Hg	Cr ⁶⁺ Note)
Criteria [mg/kg]	≤ 1000	≤ 100	≤ 1000	≤ 1000

Note) In case the content of total chromium (Cr) is 1000 mg/kg or less, it is regarded as equivalent

3.1.2.3

PBBs (polybrominated biphenyls), PBDEs (polybrominated diphenylethers) and short-chain chlorinated paraffins (C= 10~13) whose chlorine concentration is 50% or more shall not be used in the product.

3.1.2.4

Refrigerants and forming agent used for the production shall have a corresponding factor of the ozone depletion potential (ODP) equal to zero.

3.2 Quality Criteria

The quality of the product shall satisfy the safety standards in accordance with the 「Korean Safety and Control Act for Electronic Appliances」.

3.3 Consumer information

3.3.1

Coolants and forming agents

3.3.2

Energy efficiency of the time switch, etc.

4. Test Methods

Certification			Test method and verification method
Environmental Criteria	3.1.1	3.1.1.1	Test report of an authorizes agency in accordance with '4.1 and 4.2 test methods'
		3.1.1.2	Test report of an authorizes agency in accordance with '4.1 and 4.3 test methods'
	3.1.2	3.1.2.1	Verification of submitted documents
		3.1.2.2	Submitted documents in accordance with '4.4 verification and test methods'
		3.1.2.3~ 3.1.2.4	Verification of submitted documents
Quality Criteria			Test report of an authorized agency or a certificate of the equivalent or above in accordance with electrical appliances safety criteria
Consumer information			Verification of submitted documents

4.1 General Matters

4.1.1

One test sample shall be required for each applied product.

4.1.2

Test sample shall be collected at random by a certification institute from products in market or those in storage at the production site.

4.1.3

All test measurements shall be, in principle, made at the normal use condition of the samples.

4.1.4

The result of test shall be numerically set according to KS Q 5002 (Statistical interpretation method of the data – Part 1: Statistical description of the data), when testing the basis weight.

4.2 Test method for insulation performance

4.2.1

Install the test machine at its normal operation condition and apply the rated voltage to it. The voltage change during the test shall be within $\pm 2\%$ of the rated voltage, and its ambient temperature shall be adjusted within 30 ± 1 °C.

4.2.2

As for the temperature of the merchandises at the bottom, the thermostat shall be set at 6 °C for the cold beverage and 52 °C for the hot beverage in case of can vending machines. In case of coffee vending machines, the thermostat shall be set where the temperature in the hot water tank is 88 °C.

4.2.2.1

At this time, the machine must be loaded with the merchandises.

4.2.2.2

Cans, in principle, be capacity of 250mL filled with water for the test, but if water is not

available, something whose thermal capacity is similar to water can be used instead.

4.2.3

Measure the temperature of the merchandise when it has been steady through the normal operation.

4.2.4

Measure the temperature of the merchandise at the same location in the "4.2.3" three hours after the power of the heater and cooler has been cut off, and it will be the post-test temperature.

4.2.5

Calculate the temperature change between the pre-test and post-test temperature.

4.3 Accuracy of the time switch

Calculate the difference between the standard time and the temperature measured when the built-in switch is continuously operated for at least 48 hours.

4.4 Compliance verification and test method regarding the control of hazardous substances

4.1.1

Verification method for the hazardous substance management system

Note) This is the method to verify the compliance with the requirement of the restriction of the use of lead, cadmium, mercury and their compounds, and hexavalent chromium compounds in the parts of the product. This method is applicable to verify that the applicant properly controls PBBs (polybrominated biphenyls), PBDEs (polybrominated diphenylethers) and short-chain chlorinated paraffins (C=10~13).

4.4.1.1

Compliance verification shall be done by one of the following documents or more.

a) Explanatory note on the management system, established by the manufacturer on purpose to control the hazardous substances when each part of the product is supplied from the suppliers, and relevant documents

b) Test result conducted by the manufacturer in order to control the hazardous substances when each part of the product is supplied from the suppliers (In this case, test method including pre-conditioning method applied shall be specified in detail)

c) Certificate issued by the accredited third party showing that each part of the product satisfies the relevant requirements (e.g. Certificate of Korea Eco-Label according to 'EL 763. Electric and Electronic Parts')

d) Other documents showing that the manufacturer properly controls the hazardous substances when each part of the product is supplied from the suppliers.

4.4.1.2

In case the compliance of the management system cannot be verified by '4.4.1.1' or the test result for specific parts of the product is required by deliberation committee of eco-label certification, compliance verification shall be done by the following '4.2.2 Test method for measuring the content of the hazardous substances' for the parts collected at random by eco-label certification body.

4.4.2

Test method for measuring the content of the hazardous substances

Note) This is one of the test methods applicable to verify the content of lead (Pb), cadmium (Cd), mercury (Hg) and hexavalent chromium (Cr^{6+}) contained in the parts of the product. The content of the hazardous substances can be also verified according to the internationally recognized test methods. In this case, test method including pre-conditioning method shall be specified in detail and the specified test method shall be approved by deliberation committee of eco-label certification.

4.4.2.1

The parts for the test shall be collected at random by eco-label certification body.

4.4.2.2

Test samples shall be homogenized by pre-conditioning method such as pulverization of each part.

4.4.2.3

Analysis method of lead (Pb), cadmium (Cd), mercury (Hg), hexavalent chromium (Cr^{6+}), total chromium (Cr)

a) Lead (Pb), cadmium (Cd): KS M 0016 (General rules for atomic absorption spectrochemical analysis), KS M 0032 (General rules for ICP emission spectrochemical analysis) and Inductively coupled plasma mass spectrometry (ICP-MS)

b) Mercury (Hg): Atomic absorption spectrochemical analysis by using gold amalgamation method and KS M 0016 (General rules for atomic absorption spectrochemical analysis)

c) Hexavalent chromium (Cr^{6+}): Ultraviolet spectrophotometric analysis by diphenylcarbazide and Ultraviolet spectrophotometric analysis by lead acetate trihydrate

d) Total chromium (Cr): KS M 0016 (General rules for atomic absorption spectrochemical analysis), KS M 0032 (General rules for ICP emission spectrochemical analysis) and Inductively coupled plasma mass spectrometry (ICP-MS)

5. Reasons for Certification

“Power-Saving, Ozone layer protection”

Common Criteria, Notice No. 2012-36, the Ministry of Environment

1. Eco-label products must follow the following provisions with regard to the proper treatment of environmental pollution substances, such as air and water wastes and noxious chemical substances emitted in the process of manufacturing or service operation.

A. When first applying for certification, the product manufacturer should observe the environment related laws and agreements pertaining to the region where the production factory or the place of service operation is located for a period of one year prior to the date of application. Any case of violation of the penalty clause will be verified by confirming documents involved during a period of one year to the date of application. Regarding any violation not related to the penalty clause, confirmation will be made on the completion of appropriate measures.

B. A person who has received a certification of eco-labeling shall observe the environment related laws and agreements pertaining to the region where the production factory or the place of service operation is located during the period of certification. However, regarding any violation besides a penalty, confirmation will be made on the completion of appropriate measures.

2. As a general rule, information for consumers shall be indicated on the surface of the product in such a way not to be easily erased. However, in case that indication on the surface of the product is impossible or undesirable, it can be indicated on the appropriate part such as product packaging, product guidebook and user's manual that consumers can recognize. However, the service information should be indicated inside and outside of the place of service operation. In case that indication inside and outside of the place of service operation is impossible or undesirable, it can be indicated on the appropriate part such as an agreement, letter of delivery, letter of guarantee, and PR materials that consumers can recognize.

3. In order to establish fair trade and to protect consumer, the applicant for eco-label and the holder of eco-label license shall observe the Act on the Fairness of Indication and Advertisement with respect to the environmental aspects of the product.

4. For Various standards referred in the certification criteria by target product, the latest revised edition applies at the date of application, if not specified otherwise.

5. In applying the quality related criteria for each target product, if no standard is available that can be applied as the quality criteria, the president of Korea Environmental Industry & Technology Institute (KEITI) (hereafter referred to as "president of KEITI") may establish and operate the quality criteria for the product involved after review by a competent committee.