

EL208. Electric Hand Dryers

[EL208-2004/3/2009-72]



1. Scope

The criteria shall apply to the electric hands drier with automatic sensor, usually installed in the restroom.

2. Definitions

2.1

"Automatic sensor type" refers to the way that the drier works or stops automatically by perceiving the approach or removal hands. This product can be divided into 'one-off sensor type' that is automatically stopped after working a fixed amount of time, and 'continuous sensor' that works continuously as long as it perceives hands. By the way of controlling its move and stop, it can be divided into bimetal control system and electronic control system.

2.2

"Electric heating machine" refers to the equipment including heating machine and heating element.

2.3

"Standby mode" refers to the state that is waiting for work again after the movement.

2.4

"Standby power" refers to the electric power consumed by the product in the standby mode.

2.5

"Movement maintenance time" refers to the turnaround time for the sensor from moving to stopping in one-off sensor type product.

2.6

"Movement stationary mode" refers to the state that the power source supplied by electric heating machine is cut off by removing hands.

2.7

“Rated consumed power” refers to the consumed power when the drier works with maximum load condition in normal state.

2.8

“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 using chemical substances in manufacturing process, the product shall satisfy following criteria.

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.

3.1.1.1

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

3.1.1.2

Content of lead, cadmium, mercury and hexavalent chromium 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.

Substance	Pb	Cd	Hg	Cr ⁶⁺
Content[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.

Substance	Pb	Cd	Hg	Cr ^{+6(note)}
Content[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

c) The product shall not use PBBs (polybrominated biphenyls), PBDEs (polybrominated diphenylethers), and short-chain chlorinated paraffins(C=10~13) with 50% of chlorine concentration or over 50% of chlorine concentration.

d) 25g of plastic parts or over 25g of plastic parts constituting the housing of the product shall not use halogenated synthetic resin such as vinyl chloride resin (PVC), and halogen compound shall not be included within the synthetic resin. However, organofluorine additive (ex: anti-dripping agent) with weight percentage 0.5 or below is allowed.

3.1.2

With respect to the energy consumption and noise in use, the product shall satisfy following criteria.

3.1.2.1

The standby power of product must be 1.5W or less than 1.5W. However, for the product that is stopped by electronic control system, it shall not be applied.

3.1.2.2

Rated consumed power in accordance with the movement maintenance time of the product shall satisfy following criteria.

Category	Movement Maintenance Time [sec]				
	Bimetal Control System			Electronic Control System	
	10~15	15~25	25~30	10~20	20~30
Rated Consumed power [kW]	≤1.5	≤1.8	≤2.0	≤1.4	≤1.8

3.1.2.3

The movement maintenance time for the one-off sensor product should be more than 10 seconds under 30 seconds. However, with respect to the product that can control the movement maintenance time, it takes the shipping terms as the criteria.

3.1.2.4

With respect to the continuous sensor product, if nothing is sensed during working, the movement shall stop within 20 seconds. However, for the product that can control the time to stop, it takes the shipping terms as the criteria.

3.1.2.5

Product noise (sound pressure level) must be less than 70dB(A). However, with respect to the product without electric heating machine in electronic control system, it shall not be applied.

3.1.2.6

For the product with electric heating machine, machine that can convert from warm air to cold air and vice versa should be attached.

3.1.3

With respect to the recycle in the manufacturing or disposing process, the product shall satisfy following criteria.

3.1.3.1

With respect to the synthetic resin(25g or over 25g, 200 mm² or more than 200 mm² of the flat area) used for the product, it shall carry the material category mark in each separated part to make separation ·recover easy.

3.1.3.2

The product packaging cushions shall be made of recycled paper or pulp materials, such as pulp molding products. However, the following shall be regarded as equivalent to said materials.

a) Packaging cushions that have achieved the environmental mark 'packaging material (EL606)' certification

b) Packaging cushions produced with 50% or more than 50% waste synthetic resins (based on total weight)

c) Packaging cushions of foamy synthetic resin (EPS, EPE, EPP) produced using blowing agents whose ODP is equal to zero

d) Air cell packing bubble wrap that injects air into synthetic resins.

3.2 Quality Criteria

3.2.1

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

3.2.2

During operation, wind speed and outlet temperature shall satisfy following criteria.

Category	Wind Speed [m/s]	Outlet Temperature [°C]
Standard	≥ 5	≤ 50

3.3 Consumer Information

Indication on the items that the product contributes to the reasons for certification (power saving, less noise production, eco design) in its consumption stage

4. Test Methods

Certification Criteria		Test and Verification Method	
Environmental Criteria	3.1.1	3.1.1.1	Verification of submitted documents
		3.1.1.2	Documents submitted to the “verification and test methods specified in 4.2”
		3.1.1.3	Verification of submitted documents
	3.1.2	3.1.2.1	Test report by an accredited testing laboratory in accordance with Test Methods 4.1 and 4.3.
		3.1.2.2~ 3.1.2.4	Test report by an accredited testing laboratory in accordance with Test Methods 4.1 and 4.4.
		3.1.2.5	Test report by an accredited testing laboratory in accordance with Test Methods 4.1 and 4.5.
		3.1.2.6	Verification of submitted documents
	3.1.3	Verification of submitted documents	
Quality	3.2.1	Test report by an accredited testing laboratory in	

Criteria		accordance with the safety standards for electric appliances or certificate of equivalent
	3.2.2	Test report by an accredited testing laboratory in accordance with Test Methods 4.1 and 4.6.
Information for Consumers		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

The temperature shall be adjusted to $25\pm 2^{\circ}\text{C}$ during the measurement.

4.1.4

All the tests shall make it a rule to be conducted in a stabilized condition in which the product is set in regular use stage and reaches to normal conditions.

4.1.5

Test result shall be numerically set according to KS Q 5002 (Statistical interpretation method of the data – Part 1: Statistical description of the data).

4.2 Suitability verification and test method regarding usage limit criteria of harmful elements

4.2.1

Verification method of establishment & operation of suitable management system regarding harmful elements

Note) This method is for verifying the suitability regarding the criteria limiting the use of lead, cadmium, mercury, its compounds, and hexavalent chromium (Cr^{6+}) compounds on parts constituting the product. This method can be used as the method for proving that the applicant is appropriately managing PBBs, PBDEs, and short-chain chlorinated paraffins ($\text{C}=10\sim 13$) other than harmful elements.

4.2.1.1

Verify the suitability by checking any one of the following a) ~ b), or equivalent or higher documents or test results.

a) Manual and related documents regarding the management system that the product producer is preparing for appropriately managing relevant harmful elements when being supplied with part from parts supplier

b) Test results performed in-house for the appropriate management of relevant harmful elements when product producer receives supply of parts from parts supplier (In this case, it shall clearly state specific test methods including conditioning method applied to the in-house test.)

c) Certificate from 3rd party accrediting testing laboratory that can prove the parts constituting the product is appropriate for the certification criteria. [ex. Eco label certification on 'parts for electric & electronic products(EL763)' among certification criteria by product for environmental mark]

d) Other data that can prove that the relevant harmful elements is appropriately managed when the product producer receives supply of parts from parts supplier

4.2.1.2

In case it is difficult to determine whether or not the management system regarding harmful elements is appropriately established and operated in accordance with 4.2.1.1 or when the Eco-label certification review committee demand test results of specific parts, the product shall be verified in accordance to the following '4.2.2 Test method for harmful element content' regarding parts collected at random by a certification institute.

4.2.2

Test method for harmful substance content

Note) This method is an example of a test method that verifies content of lead(Pb), cadmium(Cd), mercury(Hg) and chromium 6(Cr+ 6) included in the parts constituting the product. Other than this method, content can be verified with objective test method that can be used internationally. In this case, specific test method containing conditioning method shall be clearly stated, and the suitability of clearly stated test method shall be determined after going through the evaluation of the Eco-label certification evaluation committee.

4.2.2.1

It shall be a general rule to prepare homogenous substance which has gone through fabrication such as grinding by basic unit of parts as the sample to be analyzed for its content.

4.2.2.2

Method of analyzing 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), Inductively Coupled Plasma Mass Spectrometry(ICP-MS).

b) Mercury(Hg) : Mercury(Hg): atomic absorption spectrochemical analysis by combustion gold amalgamation method, KS M 0016(General Rules for Atomic Absorption Spectrochemical Analysis)

c) Hexavalent Chromium(Cr+6): Ultraviolet spectrometry by diphenylcarbazide method, ultraviolet spectrometry by lead acetate trihydrate method.

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).

4.2.3

Measuring method of Consumed power in Standby Mode

After ensuring that the electric hands drier operates normally, and the standby consumed power shall be measured in that state.

4.2.4

Measuring method of Consumed power and Time during Operation

4.2.4.1

Measure the consumed power and operational time from when the drier starts to move, and until it stops. However, the drier must sense the object continuously during the measurement.

4.2.4.2

Test result represents the average value after measuring three times at 30 minutes intervals.

4.2.5

Measuring Method of Noise (sound pressure level)

4.2.5.1

Test for noise emission shall be conducted with the following condition in accordance with KS I ISO 1996-1 (Acoustics - Description, measurement and assessment of acoustics - Description, measurement and assessment of environment noise - Part 1: Basic quantities and assessment procedures). A sound level meter specified in KS C 1502 (Sound level meters) shall be used, and the noise emission shall be determined in accordance with the weighting network A.

4.2.5.2

With respect to setting the product, the general setting condition shall be the principle, however in case the condition does not match to the general setting condition, install the product in the height of 1.2m from the bottom of the laboratory.

4.2.5.3

The noise shall be gauged at a point, 1m away from the sides and the front, and represented as the biggest one among the gauged values. However, in case it is hard to get single value because of the big change of noise, it can be measured with equivalent noise. If it is necessary for measuring the equivalent noise, the operational time can be changeable as long as it does not transform the product characteristics.

4.2.5.4

If the noise is gauged in a non-anechoic room, the distance between walls and the tested product shall be broad enough not to create reflecting sounds. A gap between background noise and gauged noise shall be at least more than 10dB(A).

4.2.5.5

The noise in standby mode shall be measured in stabilized condition after operating once.

4.2.6

Measuring Method of Wind Speed and Temperature of Outlet during Operation

4.2.6.1

Measure the wind speed and temperature when the product is saturated enough by repeating work and stop. However, if it is necessary for saturating the temperature, one-time operational time can be changeable as long as it does not transform the product characteristics.

4.2.6.2

The measuring location shall be the spot from 10cm away from the geometrical center against the wind side. Test result represents the average value from measuring 3 times.

5. Reasons for Certification

“Power-saving, Low noise production, Design for environment”

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.