

Korea Eco-label Standards

EL208

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Ministry of Environment

Electric Hand Dryer

EL208:2013



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For opinions and inquiries on this standards, please contact the KEITI Environmental Certification Strategy Office(Tel. 1577-7360), or refer to the website(<http://el.keiti.re.kr>).

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Foreword

This standard is the certification criteria for environmental covers revised through deliberation of a committee to set up the certification criteria according to the procedure specified in the 「Environmental Technology and Environmental Industry Support Act」.

Accordingly, it is certification criteria for environmental covers made in the internationally standardized form without changing any technical matters of EL 208.Electric Hand Dryer 【EL208-2004/5/2013-23】.

It should be noted that parts of this standard may in conflict with patent rights having technical characteristics, patent applications after laying-open of application, utility model rights or application for the utility model registration after laying-open of application. The Minister of Environment shall have no responsibility for confirmation of matters related to patent rights having technical characteristics, patent applications after laying-open of application, utility model rights or application for the utility model registration after laying-open of application.



1 Scope

This standard specifies a method to confirm the certification criteria and conformance of environmental covers of electric hand dryers with an automatic sensor usually installed and used in the restroom.

2 Normative references

The following documents, in whole or in part, are indispensable for application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EL606, Packaging Materials

EL763, Electrical and Electronic Pats

KS C 1502, Sound level meters

KS C IEC 62321, Electrotechnical products - Determination of levels of six regulated substances(lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, polybrominated diphenyl ethers)

KS C IEC 62321-4, Determination of certain substances in electrotechnical products — Part 4: Mercury in polymers, metals and electronics by CV-AAS, CV-AFS, ICP-OES and ICP-MS

KS C IEC 62321-5, Determination of certain substances in electrotechnical products — Part 5: Cadmium, lead and chromium in polymers and electronics Part 5: Cadmium, lead and chromium in polymers and electronics

KS I ISO 1996-1, Acoustics — Description, measurement and assessment of environment noise — Part 1: Basic quantities and assessment procedures

KS Q 5002, Statistical presentation of data

IEC 62321-7-1, Determination of certain substances in electrotechnical products — Part 7-1: Hexavalent chromium — Presence of hexavalent chromium (Cr(VI)) in colourless and coloured corrosion-protected coatings on metals by the colorimetric method

Technical Regulations for Electrical and Telecommunication Products and Components,
Notification of the Korean Agency for Technology and Standards in accordance with the 「
Electrical Appliances and Consumer Products Safety Control Act」

3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

3.1

automatic sensor type

method of detecting hand approach or moving away for automatic start or stop of the dryer

NOTE Products can be divided into 'one-off sensor type' that automatically stops after operating for a

certain period of time, and ‘continuous sensor type’ that works continuously as long as it detects hands. Products can be also divided into bimetal control system and electronic control system based on the way to control its move and stop.

3.2

electric heating machine

device that includes heating machine and heating element

3.3

standby mode

mode where the product is ready to operate after completing the previous operation

3.4

standby power

electric power consumed by the product in the standby mode

3.5

operation maintenance time

in the ‘1-time detection type’ product, the time that the sensor is operated to start the drying to automatically stopping the operation

3.6

operation stop mode

mode where the power supply to the electric heating machine is cut off by removing hands

3.7

rated power consumption

power consumption when operating the hand dryer at the maximum load condition in the normal state

3.8

ozone depletion potential (ODP)

value indicating the relative impact of substances depleting ozone when the ozone depletion impact of CFC-11 is set to be 1

4 Environment-relate criteria

Environment-related items considering the whole processes of electric hand dryers are given in the **Table 1**.

Table 1 — Environment-related items by each step in the whole processes of electric hand dryer

Step in the whole processes	Items related to environment	Effects on improving the environment
Acquiring raw materials	—	—
Manufacture	• Substances banned to use	• Reduction of harmful substances
	• Harmful elements of components	• Reduction of harmful substances
Distribution, Usage, consumption	• Standby power	• Saves energy

Step in the whole processes	Items related to environment	Effects on improving the environment
	• Rated power consumption	• Saves energy
	• Operation maintenance time	• Saves energy
	• Operation stop mode	• Saves energy
	• Noise	• Low noise
	• Hot-air and cool-air inverter	• Saves energy
Discard	—	—
Recycle	• Synthetic resin	• Improve recyclability
	• Shock-absorbing materials	• Improve recyclability

4.1 Substances banned to use

Products shall not use the following substances.

NOTE This Criterion shall not apply to materials which are exempted from Hazardous Substances Restriction lists according to the 「Act on Resource Circulation of Electrical and Electronic Equipment and Vehicles」 and soldering lead applied to printed circuit board (PCB). However, when the 「Act on Resource Circulation of Electrical and Electronic Equipment and Vehicles」 is revised, it shall comply with the revised act at the point of time for applying certification.

- Lead (Pb), cadmium (Cd), mercury (Hg) and their compounds, and hexavalent chromium compound (Cr^{6+})
- Polybrominated biphenyls (PBBs), polybromodiphenyl ethers (PBDEs), and short-chain chlorinated paraffins whose chlorine concentration is 50 % or higher [SCCP (C=10~13)]

4.2 Harmful elements of components

Content of lead (Pb), cadmium (Cd), mercury (Hg) and hexavalent chromium (Cr^{6+}) in the components of the product shall comply with the criteria in **Table 2**. However, if an appropriate management system on relevant harmful substances is constructed and operated, this criterion is considered to be complied with.

Table 2 — Criteria for content of harmful elements

Substance	Lead (Pb)	Cadmium (Cd)	Mercury (Hg)	Hexavalent chromium (Cr^{6+})
Criteria (mg/kg)	≤ 1,000	≤ 100	≤ 1,000	≤ 1,000
<p>NOTE 1 In case the content of total chromium (Cr) is 1,000 mg/kg or less, it is considered that the criteria for hexavalent chromium (Cr^{6+}) is complied with.</p> <p>NOTE 2 This Criterion shall not apply to materials which are exempted from Hazardous Substances Restriction lists according to the 「Act on Resource Circulation of Electrical and Electronic Equipment and Vehicles」 and soldering lead applied to printed circuit board (PCB). However, when the 「Act on Resource Circulation of Electrical and Electronic Equipment and Vehicles」 is revised, it shall comply with the revised act at the point of time for applying certification.</p>				

4.3 Standby power

Standby power shall be 1.5 W or less. However, this criterion does not apply to a product with electronic control system.

4.4 Rated power consumption

Rated power consumption based on the operation maintenance time shall comply with the criteria in the **Table 3**.

Table 3 — Criteria for rated power consumption

Type	Operation maintenance time				
	s				
	Bimetal control system			Electronic control system	
	10~15	15~25	25~30	10~20	20~30
Rated power consumption (kW)	≤ 1.5`	≤ 1.8	≤ 2.0	≤ 1.4	≤ 1.8

4.5 Operation maintenance time

The operation maintenance time for the one-off sensor product shall be (10~30) seconds. However, the product that can control the operation maintenance time takes the shipping terms as the criteria.

4.6 Stop operating state

Regarding the continuous sensor product, if nothing is detected during operation, the operation shall stop within 20 seconds. However, for the product that can control the time to stop, it takes the shipping terms as the criteria.

4.7 Noise

Noise (sound pressure level) shall be 70 dB(A) or less. However, this criterion does not apply to a product with electric heating machine in the electronic control system.

4.8 Hot-air and cool-air inverter

Products having electric heating machine shall be equipped with a device to convert hot air and cool air.

4.9 Synthetic resin

Synthetic resin used for the product shall comply with the following criteria.

- As for synthetic resin weighing 25 g or more and covering a flat surface of 200 mm² or more, material classification shall be marked on each separable part in order to separate and collect easily.
- Halogenated synthetic resin such as PVC (polyvinyl chloride) shall not be used for the plastic housing parts weighing 25 g or more, and also halogenated compounds shall not be contained in those parts. However, organo-fluorine additives with 0.5 wt% or less are allowed.

EXAMPLE Organo-fluorine additive as an anti-dripping agent

4.10 Shock-absorbing materials

Each shock-absorbing material shall comply with one of the following criteria and shall be composed of a single quality of material.

- a) Recycled paper and pulp material, such as pulp mold
- b) Shock-absorbing materials with the eco-label certification in accordance with EL606
- c) Shock-absorbing materials manufactured by using more than 50 % by weight of disused synthetic resin
- d) Shock-absorbing materials made of expanded synthetic resins [expanded polyethylene (EPE), expanded polypropylene (EPP), and expandable polystyrene (EPS)] manufactured by using substances with ODP of 0 as foaming agents
- e) Air-cell shock-absorbing materials made by injecting air into synthetic resin material

5 Quality-related criteria

5.1 Safety criteria for electric appliances

The quality of products shall comply with relevant provisions in the **Technical Regulations for Electrical and Telecommunication Products and Components**.

5.2 Wind speed and outlet temperature

Wind speed and outlet temperature when the product operates shall comply with the criteria in the **Table 4**.

Table 4 — Criteria for wind speed and outlet temperature

Type	Wind speed m/s	Outlet temperature ℃
Criteria	≥ 5	≤ 50

6 Consumer information

The reason for certification on the product and the matters contributing to the degradation of environment effect by the product shall be indicated.

7 Verification methods

Test methods and verification methods by each item of the certification criteria are given in the **Table 5**.

Table 5 — Test methods and verification methods by each item of the certification criteria

Item of the certification criteria		Test methods and verification methods
Environment related criteria	4.1.1	Verification of submitted documents
	4.1.2	Verification of submitted documents in accordance with 8.2
	4.2	Test report by an accredited testing laboratory in accordance with 8.1 and 8.3
	4.3~4.5	Test report by an accredited testing laboratory in accordance with 8.1 and 8.4

Item of the certification criteria		Test methods and verification methods
	4.6	Test report by an accredited testing laboratory in accordance with 8.1 and 8.5
	4.7~4.9	Verification of submitted documents
Quality related criteria	5.1	Test report by an accredited testing laboratory in accordance with relevant standards or the certificate in accordance with the equivalent standard or higher
	5.2	Test report by an accredited testing laboratory in accordance with 8.1 and 8.6
Consumer information		Verification of submitted documents

8 Test methods

8.1 General

- One test sample shall be required for each product applied.
- Test samples shall be collected at random by eco-label certification body from products in market or those in storage at the production site.
- Except otherwise specified, ambient temperature for measurement shall be at 25 °C ± 2 °C.
- All measurements shall be done at the stable state after the product reaches the standard copying condition under normal operating condition.
- According to KS Q 5002, the test result value is numbered by adding 1 or more digits on the digit of the individual standard value. However, if the number of digits is defined on the number in the test method, it shall be complied with.

NOTE The test result shall include matters related to the numerical calculation.

8.2 Hazardous elements of components

8.2.1 Lead (Pb) and Cadmium (Cd)

Test is carried out according to KS C IEC 62321-5.

8.2.2 Mercury (Hg)

Test is carried out according to KS C IEC 62321-4.

8.2.3 hexavalent chromium (Cr⁶⁺)

It is tested in accordance with KS C IEC 62321 Annex C 'Detection of hexavalent chromium in polymers and electronic products by colorimetry'.

8.3 Test method for measuring standby power

After ensuring that the test sample operates normally in the standby mode, measure the power consumption as the standby power.

8.4 Test method for measuring power consumption and operation time during operation

- a) Measure the power consumption and operation time from when the dryer starts to operation until it automatically stops in an appropriate way. However, the dryer must detect the object continuously during the measurement.
- b) Test result is the average of measured values for three times at 30 minute intervals.

8.5 Test method for measuring noise (sound pressure level)

Noise shall be measured under the following conditions in accordance with KS I ISO 1996-1

8.5.1 Environmental conditions

The noise test shall be conducted in a perfectly anechoic room. However, if it is not possible to measure noise in the anechoic room, the distance between walls and the test sample shall be broad enough to ignore reflecting sound, and the background noise shall be lower than the measured noise by at least 10 dB(A).

8.5.2 Installation condition

The test sample shall be installed under the general installation condition. However, in case that it is difficult to comply with the general condition, the product may be installed at the height of 1.2 m from the center floor of the laboratory.

8.5.3 Sound level meter

Refers to sound level meter specified in KS C 1502.

8.5.4 Test procedure

The measurement of noise shall be taken 1m from the center of the flank sides, front side and back side of the test sample with a sound level meter specified in **8.5.3**. Measure noise value of the weighting networks A characteristic for 3 times, and calculate the average noise value in each direction. Present the maximum noise value among the average noise values as a noise value of the test sample. However, if the fluctuation of the noise is high to have difficulty in acquiring the single value, the equivalent noise may be measured. If required the operation time may be change in the range of not changing the product characteristics for the measurement of the equivalent noise.

8.5.5 Noise in the standby mode

Noise in the standby mode shall be measured under the stabilized condition after operating the product once.

8.6 Test method for measuring wind speed and outlet temperature

8.6.1 Measuring location

The measuring location shall be the spot from 10 cm away from the geometrical center against the wind side.

8.6.2 Test procedure

The operation of starting and stopping the test sample with appropriate method is repeated to saturate the product sufficiently, and the wind speed and & temperature are measured in the point set in **8.6.1**. However, if required, the test may be changed with the operation time for 1 time in the range of not changing the product characteristics for the temperature saturation of the test sample. The test result is shown in the average of values measured 3 times.

9 Reasons for certification

Category	Improvement of resource circulation ^a	Energy saving ^b	Reduction of global environmental pollution ^c	Reduction of local environmental pollution ^d	Reduction of harmful substances ^e	Reduction of life environmental pollution ^f	Reduction of noise and vibration ^g
Degree		●					●
^a Resource saving, water saving, improvement of recyclability, recycling of effective resources, etc. ^b Energy saving, use of renewable energy, etc. ^c Reduction of greenhouse gas emission, reduction of ozone layer-depleting substance emission, etc. ^d Reduction of air pollutants emission, reduction of water pollutants emission, reduction of soil pollutants emission, reduction of waste generation, improvement of biodegradation, etc. ^e Reduction of the use of harmful substances, reduction of exposure to harmful substances for human body, etc. ^f Reduction of indoor air pollutants emission, reduction of light pollution, etc. ^g Low noise, reduction of vibration							

Reference

[1] EU Directive 2011/65/EU, Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

Common Criteria, Notice No. 2017-103, the Ministry of Environment

1. Those who have received the eco-label certification shall comply with the environment regulation standards during the certification period. In case of a breach of the environmental regulation standards, the details of such violation, an improvement measure, and a recurrence-preventive measure including data listed below shall be submitted to the Director of the Korea Environmental Industry & Technology Institute (hereinafter referred to as "the KEITI Director") within one month from the date of such violation. If the required set of documents and data is submitted and implemented as planned, it shall be deemed conforming.
 - A. A list of the environment regulation standards applicable to the area where the applicant is located
 - B. The company system to implement the environment regulation standards (including an organization chart describing roles and responsibilities)
 - C. The company regulation for archiving records and documents related to implementation of the environment regulation standards.
2. In relation to the "Consumer Information" label specified in the certification criteria for each product, the followings shall be complied with.
 - A. "Consumer Information" related to the product shall be marked on the surface of the product. However, in the case where the KEITI director acknowledges that it is not possible to mark it on the surface of the product or that the marking itself is undesirable, Consumer Information may be marked on other appropriate area(s) where can be easily recognized by consumers such as the product packages, product guides or user guides.
 - B. "Consumer Information" related to the service shall be displayed on the inside/outside of the premises of the service operation business. However, in the case where the KEITI director acknowledges that it cannot be displayed on the inside/outside of the premises, or that the marking itself is not desirable, Consumer Information may be displayed on other appropriate area(s) where can be easily recognized by consumers such as contracts, delivery statements, warranties, or promotion materials.
3. Those who wish to receive the eco-label certification or who have been eco-label certified shall comply with the Act on Fair Labeling and Advertising in order to establish fair trade order and protect consumers. In addition, unfair labels or advertisements that are related to the environmental aspects of the product are not allowed in accordance with Clause 10 of Article 16 of the Act.
4. In the case where there is a restriction related to the raw materials in use or the place of product use in accordance with other laws or regulations or in the case where the product needs to be certified prior to its production, all those applicable certification standards and regulations shall be complied with.
5. With respect to the various standards cited in the certification criteria for the target product, only the latest versions of the standards shall apply unless otherwise noted. If the applicable regulation criteria is strengthened compared to the certification criteria of each product due to a revision of relevant laws and regulations, the strengthened regulation criteria shall tentatively apply; if the regulation criteria is to be abolished, its current version shall tentatively apply until the applicable certification criteria is revised.
6. When it is judged that application of quality-related criteria in accordance with the certification criteria of each product is inappropriate, the KEITI Director may set and implement the needed quality criteria for relevant products.

[Verification method in accordance with the certification criteria]

1. The test certificate in accordance with the prescribed test methods shall mean a test report issued by one of the agencies (listed below) designated by the KEITI Director. When a person applying for the Eco-label certification seeks to be verified by a test/inspection institution not included in the list below, such verification shall be conducted in the presence of a professional designated by the KEITI Director.
 - A. Korea Environmental Industry & Technology Institute in accordance with 12 of Clause 4, Article 5 of the Act
 - B. Test/inspection institutions recognized in the accreditation system for test/inspection institutions in accordance with the Article 23 of the 「Framework Act on National Standards」 (e.g. test/ inspection institutions accredited by KOLAS)
 - C. Test/inspection institutions designated and accredited by the president of central administrative agency in accordance with relevant laws
 - D. Foreign test/inspection bodies complying with the ISO/IEC 17025
 - E. Test/inspection institutions recognized by the KEITI Director in case that it is difficult to conduct tests in one of the institutions specified from A to D.
2. A test and inspection organization that issued a test certificate in accordance with Clause 1 herein shall comply with the KETI Director's request for data related to the test unless there is a specific reason. If the institution rejects the request of KEITI Director without a justifiable reason, the test/inspection institution is subject to restrictions on their testing & inspection work.
3. The submitted documents shall be verified according to the test certificate, raw material supply/production statement, product related certificate(s), user manual, guidebook, or product provided by the person who wishes to receive the eco-label certification in order to prove that the product complies with relevant certification criteria. If it is a service, it may include performance data, documentary evidence and on-site photos. However, when such verification cannot be complete only with the submitted documents, more tests according to Clause 1 may be added.
4. In case that the person who has already received the certification seeks for additional certification on models using the same materials, parts or components as the certified product, the previous verification results of raw materials, parts or components may be used again; provided, however, that the additional certification shall be applied within 12 months from the date of initial certification.
5. In case of certification in accordance with 2 of Clause 3, Article 4, the KEITI Director shall randomly select a sample from models in the product line for verification.
6. In case of certification in accordance with 3 of Clause 3, Article 4, the KEITI Director shall randomly select a sample from models in the product line for verification. However, in the case where some of environmental and quality information is different from model to model and affects their verification results, each model shall be separately verified according to the environment-related or quality-related criteria.