

## **EL251. Adhesives**

[EL251-2004/5/2013-132]



### **1. Scope**

The criteria shall apply to the adhesive used for combining two or more kinds of like or unlike solids. However, products using cement as a material, products used to fill connections or joints to give waterproofing and air tightness and fixative (e.g., sealant), and spray-type products are not included.

### **2. Definitions**

#### 2.1

“VOCs (volatile organic compounds)” refers to liquid or solid organic compounds which volatilizes constantly by established temperature and pressure in air.

#### 2.2

“VOCs contents” refers to the mass of VOCs per unit volume which is measured under the prescribed condition.

Note) Organic compounds having a boiling point of 250 °C or lower are provisionally considered as VOCs in the criteria.

#### 2.3

“Volatile organic compounds emissions (VOCs emissions)” refers to the quantity of the VOC (Volatile Organic Compounds) per unit hour that is discharged to the outside while the product is running under the defined conditions.

Note) This standard tentatively defines them as VOCs from n-hexane to n-hexadecane on the chromatogram, which is created by the gas chromatograph equipped with the mass spectrometer

### **3. Certification criteria**

#### **3.1 Environmental criteria**

##### 3.1.1

With respect to using chemical substances in manufacturing process or safety in using process, the product shall satisfy following criteria.

### 3.1.1.1

Lead (Pb), cadmium (Cd), mercury (Hg), hexavalent chromium (Cr<sup>6+</sup>) included in the product shall satisfy following criteria.

Harmful Substances	Pb	Cd	Hg	Cr <sup>6+</sup> note)
Criteria [mg/kg]	≤ 50	≤ 0.5	≤ 0.5	≤ 0.5

Note) When the total content of Cr is less than 0.5 mg/kg, it is also considered to be conformed to the standard.

### 3.1.1.2

Alkyl phenol ethoxylated (APEOs), organo-mercury compounds, organo-tin compounds (TBT, TPT) shall not be used as material of the product.

### 3.1.1.3

In case of using flame retardant in the product, additives which does not include PBBs (polybrominated biphenyls), PBDEs (polybrominated diphenylethers), short-chain chlorinated paraffins (C=10-13) of a 50 % or above 50 % chlorine density shall not be used.

### 3.1.1.4

With respect to using plasticizer, phthalate plasticizer shall not be used.

### 3.1.2

With respect to releasing pollutants in use, the product shall satisfy following criteria.

#### 3.1.2.1

VOCs included in the product shall satisfy following criteria.

Item	Outdoor	Indoor
Criteria [Weight %]	≤ 1.0	≤ 0.10

Note) In cases where the use of the corresponding adhesives and the use of the final product for which the corresponding adhesives are used are clearly for outdoor use, or in cases where the expression "only for outdoor use" is not indicated, it should be considered as an "indoor use product".

#### 3.1.2.2

With regard to the emission of pollutants in consideration of indoor air quality, the emission of VOCs, toluene, and formaldehyde after 7 days of the use of the indoor product should be satisfied in accordance with the following criteria.

Item	VOCs	Toluene	Formaldehyde
Criteria [mg/m <sup>3</sup> . h]	≤ 0.40	≤ 0.080	≤ 0.02

## 3.2 Quality Criteria

### 3.2.1

If Korean Industrial Standards are available as a national standard of the product in question, it should satisfy the quality or performance criteria of the standard in question. However, items related to “3.1 Environmental Criteria” are excluded.

### 3.2.2

If no Korean Industrial Standards are available as a national standard of the product in question, it should satisfy the quality and performance criteria according to the following sequence. However, the items related to “3.1 Environmental Criteria” are excluded. Also, if the Eco-label Certification Criteria Setting Committee determines that the applying criteria are not reasonable considering the characteristic of the product, it should satisfy the standards that were modified by the committee (test item, test method, reference values, etc.).

3.2.2.1 National standards other than Korean Industrial Standards.

3.2.2.2 Overseas national standards or international standards regarding the product quality in question.

3.2.2.3 Standards of the organizations at home and abroad that are referred by the current Eco-label target product and certification standard.

3.2.2.4 A private standard that is recognized as higher than the national standard in the industry of the product in question.

## 3.3 Consumer Information

### 3.3.1

Indication on the items that the product contributes to the reasons for certification (less harmful substances, less indoor air pollution, less air pollutants) in its consumption stage

3.3.2

In case of the product for outdoor, indicate corresponding information on the product.

Ex) “Products for outdoor use,” “For outdoor”, “Outdoor products”, etc.

**4. Test Methods**

Certification Criteria		Test and Verification Methods
Environmental Criteria	3.1.1	3.1.1.1 Verification of submitted documents and the test report by an accredited testing laboratory in accordance with following test methods <ul style="list-style-type: none"> <li>▪ Pb, Cd: KS M 0016(Directives of atomic absorption analysis), KS M 0032(Directives of spectrometry for emitting high frequency inductively coupled plasma), high frequency inductively coupled plasma mass spectrograph(ICP-MS)</li> <li>▪ Hg: Atomic absorption analysis by hot vaporizing gold amalgamation, KS M 0016(Directives of atomic absorption analysis)</li> <li>▪ Cr<sup>6+</sup>:Ultraviolet spectrometry by diphenylcarbazide, Ultraviolet spectrometry by lead acetatetrihydrate</li> <li>▪ Total Cromium: KS M 0016(Directives of atomic absorption analysis), KS M 0032(Directives of spectrometry for emitting high frequency inductively coupled plasma), high frequency inductively coupled plasma mass spectrograph(ICP-MS)</li> </ul>
		3.1.1.2 ~3.1.1.4 Verification of submitted documents
	3.1.2	3.1.2.1 Test report by an accredited testing laboratory in accordance with KS M ISO 11890-1[Paints and varnishes - Determination of volatile organic compound (VOC) content - Part 1: Difference method] or KS M ISO 11890-2[Paints and varnishes - Determination of volatile organic compound (VOC) content - Part 2: Gas chromatographic method]
		3.1.2.2 Test report by the relevant accredited testing laboratory in accordance with the following test methods of the equivalent or higher test method <ul style="list-style-type: none"> <li>▪ the indoor air quality process test method (pollutant release building materials test method)</li> <li>▪ KS I ISO 16000-9 [Indoor air - Part 9: Determination of the emission of volatile organic compounds – Emission test chamber method], KS I ISO 16000-6 [Indoor air – Part 6: Determination of volatile organic compounds in indoor and test chamber air by active sampling on absorbent TENAX TA, thermal desorption and gas chromatography using MS/FID], KS I ISO 16000-3 [Indoor air – Part 3 : Determination of formaldehyde and other carbonyl compounds – Active sampling method] and KS I ISO 16000-11[Indoor air - Part 11: Determination of the emission of volatile organic compounds - Sampling, storage of samples and preparation of test specimens]</li> </ul>

Quality Criteria	Test report by the relevant accredited testing laboratory or certificate of equivalent
Consumers Information	Verification of submitted documents

#### **4.1 General Matters**

##### 4.1.1

The number of test samples shall be one sample a product applied in principle. However, in case that more than one sample is required, it shall make an exception.

##### 4.1.2

The test sample shall be randomly sampled out of the commercial products or the products kept in the producing location by an entrusted institution of label certification.

##### 4.1.3

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

#### **5. Reasons for Certification**

“Less harmful substances, Less indoor air pollution (confined to applicable products)”

## **[Common Criteria]**

1. The candidate products for Korea Eco-Label shall comply with the following regulations with regard to the appropriate processing of environmental contaminants that occur in the process of manufacturing or service operation, including air contaminants, water contaminants, waste and harmful chemical substances.
  - 1.1 A person who violates any environment-related law or agreement applicable in the region where his or her factory or operating establishment is located within one year prior to the date of application may not apply for Korea Eco-Label certification. For violations other than the ones subject to penalties, however, a person may apply for the certification after completion of any action for the violation.
  - 1.2 A person who has obtained Korea Eco-Label certification must comply with the environment-related laws and agreements applicable in the region where the factory or operating establishment is located during the certification period. If any violation against penal provisions is found during the certification period, however, the certification may be canceled, and for violations other than the ones against penal provisions, the certification may be suspended until the relevant action is completed.
2. In principle, the “consumer information” specified in the certification standards by product shall be marked in a way not to be removed easily on the surface of the product. If it is impossible or undesirable to mark it on the surface of a product, the information shall be marked on another appropriate part of a product where consumers will notice it, including product packaging, a guidebook, an instruction or etc. For services, however, the consumer information shall be, in principle, marked on the internal and external areas of a building where the service is provided. If it is impossible or undesirable to mark it on the internal or external area of a building, however, it shall be marked on an appropriate part where consumers can notice it, including a contract, statement of delivery, letter of guarantee or brochure.
3. A person who has applied for, or obtained approval for, use of Korea Eco-Label on a product shall comply with the Fair Labeling and Advertising Act in order to establish

fair trade order and protect consumers, and if they violate the law, their application for certification may be rejected or their certification may be canceled.

4. Unless otherwise specified, the various specifications cited in the certification criteria by product shall be the latest ones at the time of application for certification.
5. If application of the standards for quality in accordance with the certification criteria by product is deemed as inappropriate, the President of Korea Environmental Industry & Technology Institute (hereinafter referred to as KEITI president) may establish and operate the quality criteria for the product after deliberation committee review or expert consultation.