



## **EL602. Printing Inks and Writing Inks [EL602-1998/5/2012-36]**

### **1. Scope**

The criteria shall apply to offset inks (wet and dry), flexographic inks, gravure inks, screen inks, and writing ink (hereafter referred to as “ink”).

### **2. Definitions**

#### **2.1**

“Volatile organic compounds (VOCs)” refer the liquid or solid organic compounds volatilized into the atmosphere under a certain temperature and pressure conditions.

#### **2.2**

“VOCs content” refers to the mass of VOCs in paints measured under certain test conditions.

Note) The criteria define VOCs content as all the organic compounds having boiling point 250 or lower.

#### **2.3**

“Volatile aromatic hydrocarbons (VACs)” refer to aromatic hydrocarbons included in VOCs.

#### **2.4**

“Writing ink” refers to the ink that is injected into ball point pens and marking pens.

#### **2.5**

“Halogenated hydrocarbons” refer to hydrocarbons incorporated with halogen elements such as chlorine (Cl), bromine (Br), etc.

### **3. Certification Criteria**

### **3.1 Environmental Criteria**

#### 3.1.1

With respect to pollutant emission during the use stage, volatile substance in the product shall comply with the following requirements.

##### 3.1.1.1

VOCs content of the product shall be 25wt% or less.

##### 3.1.1.2

Solvents with 1wt% or less of volatile aromatic hydrocarbons (aromatics free) shall be used, or volatile aromatic hydrocarbons contained in the product shall be 1wt% or less.

#### 3.1.2

With respect to chemical use during the manufacturing process and safety during the use stage, the product shall comply with the following requirements.

##### 3.1.2.1

Lead, cadmium, mercury, selenium, arsenic, antimony or compounds of these materials, and chromate compounds (Cr6+) should not be used for the product as the raw material of pigments. In addition, the total quantity of lead (Pb), cadmium (Cd), mercury (Hg) and hexavalent chromium should be less than 100 mg/kg.

##### 3.1.2.2

Water-soluble compounds of manganese, zinc, and barium and triphenyl tins (TPT) and tributyl tins (TBT) shall not be used in the product.

##### 3.1.2.3

Chemicals belonging to the following H code class according to the UN Globally Harmonized System of Classification and Labeling of Chemicals should not be used. However, carbon black should be excluded.

Note: EU Regulation (EC) No. 1272/2008 Annex VI Part 3, (Harmonized Classification and Labeling Tables) will be tentatively applied to the material list.

- H300 : fatal if swallowed
- H301 : toxic if swallowed
- H310 : fatal in contact with skin
- H311 : toxic in contact with skin
- H330 : fatal if inhaled
- H331 : toxic if inhaled
- H340 : may cause heritable genetic damage
- H341 : possible risk of irreversible effects
- H350 : may cause cancer
- H350i : may cause cancer if inhaled
- H351 : limited evidence of a carcinogenic effect
- H360D : may cause harm to the unborn child
- H360F : may impair fertility
- H361F : risk of impaired fertility and unborn child(possible risk of harm to the unborn child)
- H370 : danger of very serious environmental effects
- H400 : very toxic to aquatic organism
- H410 : adverse effects in the aquatic environment
- H411 : toxic to aquatic organism and may cause long term adverse effects in the aquatic environment
- H412 : harmful to aquatic organisms, may cause long term adverse effects in the aquatic environment

#### 3.1.2.4

Halogenated hydrocarbon and the following substances should not be used as solvents (including fraction).

CAS No.	Substance name	CAS No.	Substance name
56-23-5	carbon tetrachloride	67-66-3	chloroform
75-15-0	carbon disulfide	79-01-6	trichloroethylene
79-34-5	1,1,2,2-tetrachloroethane	107-06-2	1,2-dichloroethane
156-59-2	1,2-dichloroethylene		

### 3.2 Quality Criteria

### 3.2.1

It shall be verified that the product retains the level of performance or quality high enough to be recognized by the industries that use it.

### 3.2.2

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.

### 3.2.3

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 E-Mark 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, standards, etc.).

#### 3.2.3.1

National standards other than Korean Industrial Standards

#### 3.2.3.2

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

#### 3.2.3.3

Standards of the organizations at home and abroad that are referred by the current E-mark target product and certification standard

#### 3.2.3.4

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

### **3.3 Information for Consumers**

Mark those items that contribute to the reasons for certification of the product

(Reduced harmful substances, less air pollutants) in the consumption stage

#### 4. Test Methods

Certification Criteria			Test and Verification Methods
Environmental Criteria	3.1.1	3.1.1.1	Test report by an accredited testing laboratory in accordance with the ISO 11890-1 [Paints and varnishes - Determination of volatile organic compound (VOC) content - Part 1: Difference method]
		3.1.1.2	· Verification of submitted documents or · Test report by an accredited testing laboratory in accordance with the ASTM D3257 [Standard Test Methods for Aromatics in Mineral Spirits by Gas Chromatography]
	3.1.2	3.1.2.1	· Verification of submitted documents or · Test report by an accredited testing laboratory in accordance with the KS M 0016 (General rules for atomic absorption spectrochemical analysis), KS M 0032 (General rules for ICP emission spectrochemical analysis)
		3.1.2.2 ~ 3.1.2.4	Verification of submitted documents
		Quality Criteria	
Consumer Information			Test report by an accredited testing laboratory in accordance with the applicable standards or certificate of equivalent
			Verification of submitted documents

#### 4.1 General Matters

##### 4.1.1

One test sample for each applied product is required in principle with the exception that more than one test sample is necessary.

##### 4.1.2

Samples for test 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 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).

## **5. Reasons for Certification**

“Reduced harmful substances, less air pollutants”

## **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.