


<div></div> <div>Green Mark</div>	<div>Ink Pens</div>	General No. : 57
		Classified No. : A-04
<div>1. Scope</div> <p>This standard is applicable to ink pens (“products”), as defined by CNS 11312: Marking Pens, CNS 2463: Oil-based Ink Ballpoint Pens, CNS 6630: Fountain Pens, CNS 15439: Gel Ink Ballpoint Pens, and CNS 15440 Water-based Ink Ballpoint Pens, and their associated ink refills.</p> <div>2. Terms and definitions</div> <p>For this standard, the following terms and definitions shall apply.</p> <div><div>(1) Halogenated solvent: A solvent whose molecule contains one (or more) halogen atoms.</div><div><div>(2) Total Volatile Organic Compounds (TVOCs): The sum of 12 volatile organic compounds, including benzene, carbon tetrachloride, chloroform (trichloromethane), 1,2 - dichlorobenzene, 1,4 - dichlorobenzene, methylene chloride, ethylbenzene, styrene, tetrachlorethylene, trichlorethylene, toluene, and three xylenes (p, m, o, respectively).</div><div><div>(3) Total Polycyclic Aromatic Hydrocarbons (TPAHs): The sum of 18 polycyclic aromatic hydrocarbons, including naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, chrysene, benzo (a) anthracene, benzo (b) fluoranthene, benzo (k) fluoranthene, benzo (a) pyrene, dibenzo (a, h) anthracene, indeno (1,2,3-c, d) pyrene, benzo (g, h, i) perylene, benzo (j) fluoranthene, and benzo (e) pyrene.</div></div></div><div>3. Product characteristics</div></div>		
<div>Date of Approval</div> <div>2 0 0 0 / 1 / 1 4</div>	<div>Ministry of Environment</div>	<div>Date of Revision</div> <div>2 0 1 4 / 5 / 7</div>

3.1 The product must have available ink refills which can be used to refill depleted ink in the product.

3.2 The product's barrel and cap assembly shall be able to be disassembled easily without the use of any special tool.

4. Materials, accessories and components

4.1 The ink shall not contain antimony, arsenic, barium, cadmium, mercury, selenium, lead, and hexavalent chromium. The ink's measured contents of the aforementioned metals shall be below the regulatory limits.

4.2 The ink shall not contain halogenated solvents, total volatile organic compounds and total polycyclic aromatic hydrocarbons. The ink's measured content of the aforementioned compounds shall be below the regulatory limits.

4.3 The product and its ink refills shall not use chlorine containing plastic, and their measured chlorine content shall be below the regulatory limit,

5. Test methods and regulatory limits

The applicable test methods and regulatory limits for this standard are listed below.

Applicable Part	Regulated Substance	Regulatory Limit	Referenced Test Method
ink	antimony	< 5 ppm*	US EPA 3051A US EPA 3050B US EPA 3052
Ink	arsenic	< 3 ppm*	US EPA 3051A US EPA 3050B US EPA 3052
Ink	barium	< 2 ppm	US EPA 3051A US EPA 3050B US EPA 3052
Ink	mercury	< 2 Ppm*	US EPA 3051A US EPA 3050B US EPA 3052
Ink	cadmium	< 2 ppm	US EPA 3051A US EPA 3050B US EPA 3052

Ink	selenium	< 5 ppm*	US EPA 3051A US EPA 3050B US EPA 3052
Ink	hexavalent chromium	< 3 ppm*	NIEA T303 US EPA 3060A US EPA 7196A
Ink	Halogenated solvent	< 15 ppm*	US EPA 8260 US EPA 5021
Ink	TVOC	< 10 ppm	NIEA M711 US EPA 5021
Ink	TPAH	< 5 ppm*	NIEA R812 NIEA R813 US EPA 8270D ZEK 01.4-08
plastic	chlorine	< 260 ppm	NIEA M402 EN 14582

*: The test report shall provide evidence that the employed test methods have detection limits of less than 1/3 of regulatory limits.

6. Labeling

6.1 The product or its product packaging shall provide information that the ink can be refilled, and the product number of the ink refills shall also be provided.

6.2 The name, address and consumer hotline of the Green Mark user shall be clearly printed on the product or its packaging.

6.3 The product or its packaging shall bear a label reading "Low Pollution".

Revision History:

First revision: May 7, 2014