

# **EL701. Oil Products**

[EL701-1994/5/2006-97]



## **1. Scope**

The criteria shall apply to gas oil and gasoline used as fuel for car, indoor kerosene used as fuel for auxiliary heating devices at indoor and boilers at homes, boiler kerosene used as fuel for household and small-and-medium industry boiler and agricultural warm wind fan.

## **2. Definitions**

### **2.1**

“Fuel additives” refers to additives used on purpose to improve the performance of car or reduce the emission gas, and made of hydrocarbon as the main materials shall be excluded.

### **2.2**

“Polynuclear aromatic hydrocarbons (PAHs)” refers to the general term of aromatic hydrocarbon with more than two benzene rings.

### **2.3**

“End-point” refers to the maximum reading value [ $^{\circ}\text{C}$ ] of thermometer that is measured at the last stage of test (at the state in which test samples on the bottom of distilling flask are completely evaporated) when conducting distillation test in accordance with KS M ISO 3405(oil product - test methods of distillation).

### **2.4**

“Lubricity” refers to the size of wear scar diameter (WSD) measured when testing in accordance with test methods imitating wearing shape similar to the environment of fuel pump.

## **3. Certification Criteria**

### **3.1 Environmental Criteria**

### 3.1.1

Vapor pressure and 90% outflow temperature for benzene, sulfur, aromatic compound and olefin of gasoline shall satisfy the following requirements, and shall use detergent dispersant or friction modifier as fuel additives.

benzene [volume%]	sulfur [ppm]	aromatic compound [volume%]	olefin [volume%]	Vapor pressure (37.8°C) [kPa]	90% outflow temperature[°C]
≤ 0.6	≤ 16	≤ 20	≤ 5	≤ 48	≤ 146

### 3.1.2

Sulfur, Polynuclear aromatic compound, density and lubricity of diesel shall satisfy the following requirements, and shall use detergent dispersant or friction modifier as fuel additives.

sulfur [ppm]	Polynuclear aromatic compound [weight%]	density (15°C) [kg/ m <sup>3</sup> ]	Lubricity (60°C, WSD) [ $\mu$ m]
≤ 10	≥ 1.6	817~833	≥ 320

### 3.1.3

Sulfur and end-point of indoor kerosene shall satisfy the following requirements.

Sulfur [ppm]	End-Point [°C]
≤ 30	≤ 300

### 3.1.4

Sulfur, carbon residue of 10% remaining oil, density of boiler kerosene shall satisfy the following requirements.

Sulfur [ppm]	Carbon residue of 10% remaining oil[weight%]	Density (15°C) [kg/ m <sup>3</sup> ]
≤ 300	≤ 0.02	≤ 830

## 3.2 Quality Criteria

### 3.2.1

Gasoline shall satisfy the quality criteria of gasoline for car in accordance of 「Petroleum and Petroleum Substitute Fuel Business Act」. However, the item related to '3.1 of Environmental Criteria' shall be excluded.

### 3.2.2

Diesel shall satisfy the following criteria.

- a) 90% outflow temperature, carbon residue and cetan index of 10% remaining oil shall satisfy the following requirements.

90% Outflow Temperature [°C]	Lubricity (60°C, WSD) [μm]
≤ 350	≤ 460

- b) Diesel shall satisfy the quality criteria of diesel in accordance of 「Petroleum and Petroleum Substitute Fuel Business Act」. However, the item related to '3.1 of Environmental Criteria or 3.2.2 a)' shall be excluded.

### 3.2.3

Indoor kerosene shall satisfy the quality criteria of kerosene No.2 (indoor kerosene) of 「Petroleum and Petroleum Substitute Fuel Business Act」. However, the item related to '3.1 of Environmental Criteria' shall be excluded.

### 3.2.4

Boiler kerosene shall satisfy the following criteria.

- a) Ash and lubricity shall satisfy the following criteria.

Ash [weight%]	Lubricity(60°C, WSD) [μm]
≤ 0.01	≤ 500

- b) Boiler kerosene shall satisfy the quality criteria of kerosene No.1 (boiler kerosene) of 「Petroleum and Petroleum Substitute Fuel Business Act」. However, the item related to '3.1 of Environmental Criteria or 3.2.4 a)' shall be excluded.

## 3.3 Information for Consumers

The amount of containing harmful substance

## 4. Test Methods

Certification Criteria	Test and Verification Methods
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Environmental Criteria	3.1.1	<ul style="list-style-type: none"> <li>• Benzene and aromatic compound: Test report by an accredited testing laboratory in accordance with KS M 2407(test method for aromatics in finished gasoline for car - gas chromatography)</li> <li>• Sulfur: Test report by an accredited testing laboratory in accordance with KS M 2027 (crude oil and oil product - test methods of sulfur)</li> <li>• Olefin content: Test report by an accredited testing laboratory in accordance with KS M 2455 (test methods of olefin in gasoline for car - gas chromatography)</li> <li>• Vapor pressure : Test report by an accredited testing laboratory in accordance with KS M ISO 3007(petroleum product – measuring method of vapor pressure-reid method)</li> <li>• 90% Outflow temperature : Test report by an accredited testing laboratory in accordance with KS M ISO 3405(petroleum product-test methods of Distillation)</li> <li>• Usage of fuel additive: Verification of submitted documents</li> </ul>
	3.1.2	<ul style="list-style-type: none"> <li>• Sulfur: Test report by an accredited testing laboratory in accordance with KS M 2027 (crude oil and oil product - test methods of sulfur)</li> <li>• Polynuclear aromatic compound: Test report by an accredited testing laboratory in accordance with KS M 2456(petroleum product – test methods of aromatic hydrocarbon types in middle distillates - high performance liquid chromatography method with refractive index detection)</li> <li>• Density: Test report by an accredited testing laboratory in accordance with KS M 2002(test methods of density of crude oil and oil product and conversion table of density:weight-volume)</li> <li>• Lubricity : Test report by an accredited testing laboratory in accordance with KS M ISO 12156-1(diesel fuel – test methods of lubricity using the high-frequency reciprocating rig(HFRR))</li> <li>• Usage of fuel additive: Verification of submitted documents</li> </ul>
	3.1.3	<ul style="list-style-type: none"> <li>• Sulfur: Test report by an accredited testing laboratory in accordance with KS M 2027(crude oil and oil product - test methods of sulfur)</li> <li>• Endpoint: Test report by an accredited testing laboratory in accordance with KS M ISO 3405(test methods of distillation of petroleum product)</li> </ul>
	3.1.4	<ul style="list-style-type: none"> <li>• Sulfur: Test report by an accredited testing laboratory in accordance with KS M 2027 (crude oil and oil product - test methods of sulfur)</li> <li>• carbon residue of 10% remaining oil: Test report by an accredited testing laboratory in accordance with KS M 2017 (test methods of carbon residue powder of crude oil and oil product) or KS M ISO 10370(petroleum product – test methods of carbon residue – methods of micro)</li> <li>• Density: Test report by an accredited testing laboratory in accordance with KS M 2002 (test methods of density of crude oil and oil product and conversion table of density:weight-volume)</li> </ul>
Quality Criteria	3.2.1	<ul style="list-style-type: none"> <li>• Test report by an accredited testing laboratory in accordance with the quality criteria of gasoline for car in accordance with “Petroleum and Petroleum Substitute Fuel Business Act”</li> </ul>

	3.2.2	<ul style="list-style-type: none"> <li>• 90% outflow temperature : Test report by an accredited testing laboratory in accordance with KS M ISO 3405(petroleum product - test methods of distillation)</li> <li>• carbon residue of 10% remaining oil : Test report by an accredited testing laboratory in accordance with KS M 2017(test methods of carbon residue of crude oil and petroleum product -Conradson method) or KS M ISO 10370(petroleum product – test methods of carbon residue – method of micro)</li> <li>• Cetan index : Test report by an accredited testing laboratory in accordance with KS M 2610(Diesel)</li> <li>• Test report by an accredited testing laboratory in accordance with the quality criteria of diesel in accordance with “Petroleum and Petroleum Substitute Fuel Business Act”</li> </ul>
	3.2.3	<ul style="list-style-type: none"> <li>• Test report by an accredited testing laboratory in accordance with the quality criteria of kerosene No.2 (indoor kerosene) in accordance with “Petroleum and Petroleum Substitute Fuel Business Act”</li> </ul>
	3.2.4	<ul style="list-style-type: none"> <li>• Ash : Test report by an accredited testing laboratory in accordance with KS M ISO 6245(petroleum product – test methods of ash)</li> <li>• Lubricity : KS M ISO 12156-1(diesel fuel – test methods of lubricity using the high-frequency reciprocating rig(HFRR))</li> <li>• Test report by an accredited testing laboratory in accordance with the quality criteria of kerosene No.1 (boiler kerosene) in accordance with “Petroleum and Petroleum Substitute Fuel Business Act”</li> </ul>
Consumer Information	Verification of submitted documents	

## 4.1 General Matters

### 4.1.1

One test sample shall be required for each applied product. However, if more than one test sample is needed, the former requirement may not be met.

### 4.1.2

Test samples shall be collected at random by a certification institute from products in storage at the production site. However, test samples shall be collected at gas stations which shall be located in sales regions for relevant product at the post facto management stage.

### 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**

“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.