

EL503. Gasoline Engine Oil

[EL503-1999/5/2005-68]



1. Scope

The criteria shall apply to the engine oil for gasoline car (hereinafter referred to as "engine oil") among four-cycle engine oil.

2. Definitions

2.1

"Evaporation stability" refers to the value measuring weight ratio of engine oil loss in evaporation when testing in accordance with test method imitating evaporation consumption of engine oil from engine.

2.2

"Shear stability" refers to the value evaluating the reduction of viscosity by shearing high molecular substance such as viscosity index improvers among engine oil ingredients.

2.3

"SAE (Society of Automotive Engineers) viscosity classification" refers to the viscosity classification related to the use environment of lubricants, such as temperature, and more specifically, to a classification system defined by the American Society of Automotive Engineers.

2.4

"High temperature deposits" refers to the engine oil deposits measured according to the test method of TEOST MHT-4 (Thermo-oxidation Engine Oil Simulation Test Middle and High Temperature), which is the simulation test of the piston deposits created in an engine operated at high temperatures.

2.5

"Fuel efficiency" refers to the driving distance achieved with a certain amount of fuel under specified conditions [km/L].

3. Certification Criteria

3.1 Environmental Criteria

At the stage of use, in regard to emissions of air pollutants or resource consumption, the following conditions shall be satisfied.

3.1.1.

Phosphorus content shall be 0.06 weight % or more, and 0.08 weight % or less.

3.1.2.

Sulfur content should meet the following standards for each viscosity classification.

Division for Viscosity Classification	0 W-XX, 5W-XX	10 W-XX
Sulfur Content [Weight%]	0.5 or less	0.7 or less

3.1.3

With respect to the evaporation stability of engine oil, loss of heating of NOACK shall be less than 13 weight%.

3.1.4.

In regard to shear stability, viscosity measurement shall be within the SAE viscosity classification.

3.1.5.

High temperature deposits shall be 35 mg or less.

3.1.6.

Oxidation stability during 48 hours shall meet the following conditions.

Viscosity Ratio	Increase of Computation [mg KOH/g]	Lacquer Rate
1.5 or less	1.6 or less	'Light' or less.

3.1.7.

Engine oil shall meet or exceed GF-4 of ILSAC (International Lubricants Standards Accreditation Committee).

3.2 Quality Criteria

3.2.1

Engine oil shall maintain more than SM class quality of API (American Petroleum Institute).

3.2.2

Flash point, low-temperature apparent viscosity, kinematic viscosity, viscosity index, pour point, and oxidation stability of engine oil shall be more than quality criteria of 'three types for land' of KS M 2121(lubricating oil for internal combustion engine). In addition, in case of multiviscosity grade oil, the product shall satisfy the standard of marked 2 viscosity rate at the same time.

3.3 Information for Consumers

3.3.1

Display factors that the relevant product contributes to the reasons of certification (Improving fuel efficiency, long life and air pollution reduction) at the stage of consumption.

3.3.2.

Display information regarding the period of engine oil change under normal driving conditions.

4. Test Methods

Certification Criteria		Test and Verification Methods
Environmental Criteria	3.1.1	Test report by an accredited laboratory in accordance with KS M 2618 (Determination of additive elements, wear metals, contaminants and selected elements in used Lubricating Oils, Base Oils - Inductively coupled plasma)
	3.1.2	Test report by an accredited laboratory in accordance with ASTM D 1552[Standard test method for sulfur in petroleum products(high temperature)]

	3.1.3	Test report by an accredited laboratory in accordance with KS M 2453 (Test method for evaporation loss of lubricating oils by the Noack method)
	3.1.4	Test report by an accredited laboratory in accordance with KS M 2454 (Shear stability of polymer containing fluids using a European diesel injector apparatus)
	3.1.5	Test report by an accredited laboratory in accordance with TEOST MHT-4 test method.
	3.1.6	Test report by an accredited laboratory in accordance with KS M 2021 (Testing methods for oxidation stability of internal combustion engine oil).
	3.1.7	Verification of submitted documents
Quality Criteria	3.2.1	Verification of submitted documents
	3.2.2	Test report by an accredited testing laboratory in accordance with KS M 2121 (lubricating oil for internal combustion engine) or certificate of equivalent
Consumer Information		Verification of submitted documents

4.1 General Matters

4.1.1

One test sample shall be required for each applied product. Only 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 market or those in storage at the production site.

4.1.3

The result of test shall be numerically set according to the KS Q 5002 (Statistical interpretation method of the data – Part 1: Statistical description of the data).

5. Reasons for Certification

“Improving fuel efficiency, increasing lifespan, reducing air pollution”

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.