EL504. Diesel Engine Oil

[EL504-2000/2/2005-68]

1. Scope

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

2. Definitions

2.1

“Sulfated ash” refers to the residue measured after adding sulfuric acid to the carbon-quality materials that occur when the engine oil burns, and then the same is heated.

2.2

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

2.3

“High-temperature deposit” refers to the attachment propensity of lacquer (indicated with evaluation mark) measured in accordance with the test method of 'hot tube,' which is conducted to check thermal resistance of engine oil.

2.4

“High-temperature high-shear viscosity” refers to the value measured in accordance with test methods imitating lubricating viscosity in the crankshaft baring of engine.

2.5

“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.

2.6
“Shear stability” refers to the value evaluating the reduction of viscosity by shearing high molecular substance such as viscosity index improving material among engine oil ingredients.

3. Certification Criteria

3.1 Environmental Criteria

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

3.1.1.

Sulfated ash shall be 1.5 weight % or less.

3.1.2
Evaporation stability shall be less than 13 weight% of loss of heating of NOACK.

3.1.3
High-temperature deposit shall be 7.0 points or more.

3.1.4
High-temperature and high-shear viscosity shall be more than 3.5.

3.1.5
With respect to the shear stability, the measurement viscosity shall be within SAE viscosity classification.

3.1.6
Oxidation safety shall satisfy the following requirements for 120 hours.

Viscosity Ratio	Increase in Total Acid Number [mg KOH/g]	Lacquer Rate

≤1.5	≤1.6	≤'Pale'

3.2 Quality Criteria

3.2.1

Engine oil shall be CI-4 class of API (American Petroleum Institute) or maintain the quality level equivalent to the former.

3.2.2

Flash point, low-temperature apparent viscosity, viscosity index and pour point of engine oil shall be more than quality criteria of 'three types for land' of KS M 2121 (lubricating oil for internal combustion engine).

3.3 Information for Consumers

3.3.1

Indication on the items that the product contributes to the reasons for certification (Long-lived, less air pollutants) during its consumption stage

3.3.2

Information on replacing cycle of engine oil at the normal driving condition

4. Test Methods

Certification Criteria		Test and Verification Methods
Environmental Criteria	3.1.1	Test report by an accredited testing laboratory in accordance with KS M ISO 3987 (Petroleum products-Lubrication oil and additives-Determination of sulfated ash)
	3.1.2	Test report by an accredited testing laboratory in accordance with KS M 2453 (Test method for evaporation loss of lubricating oils by the Noack method)
	3.1.3	Test report by an accredited testing laboratory in accordance with JPI-5S-55-99 (Engine oil-Hot tube test method)
	3.1.4	Test report by an accredited testing laboratory in accordance with ASTM D 4683 (Measuring viscosity at high shear rate and high temperature by tapered bearing simulator)

	3.1.5	Test report by an accredited testing laboratory in accordance with KS M 2454 (Shear stability of polymer containing fluids using a European diesel injector apparatus)
	3.1.6	Test report by an accredited testing laboratory in accordance with KS M 2021 (Testing methods for oxidation stability of internal combustion engine oil)
Quality Criteria	3.2.1	Verification of submitted documents(note)
	3.2.2	Test report by an accredited testing laboratory in accordance with KS M 2121 (Internal combustion engine oils) or certificate of equivalent
Consumer Information		Verification of submitted documents

Note) E5 of European ACEA and DH-2 of Japan JASO can be considered as the equivalent level or higher. However, cases in which the Eco-label Certification Review Committee requests verification equivalent to CI-4 level of API (American Petroleum Institute) or more cannot be accepted.

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

“Long-lived, 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.