

KES

Specification of Automatic Transmission Oil

KES B-M039

(EST.) 1988 - 05 - 14

Contents

1. Scope of Application
2. Kind
3. Quality
4. Testing Method
5. Inspection
6. Submission of Inspection
Result
7. Procedures Concerning the
Manufactured Articles and
Alteration of Specification



1. Scope of Application

This standard specifies the automatic transmission oil (hereinafter referred to as "AFT") used in automatic transmission (hereinafter referred to as "AT") and automatic transaxles (hereinafter referred to as "ATX") of vehicles.

2. Kind

AFT kind shall conform to Table 1.

Table 1 Types of AFT

Kind	Material codes	Title	Remarks
Type 1	O-FD01	ATF-DII	GM approved oil that passed GM texlon-II specification
Kind 2	O-FM11	ATF-MIII	ATF of Mazad's own make
Kind 3	O-FF21	ATF-33F	Ford approved oil that passed Ford M2C-33 specification

3. Quality

ATF shall have adequate quality for the lubrication of AT and ATX. It is lubricant made of compounds of refined mineral oil, anti-oxidant, friction adjusting agents and anti-foamings, without water and sediments and shall conform to the specifications of Table 2.

4. Testing Method

4.1 Test Sample Adoption Method

Shall conform to KS M 2001 (Method of sampling crude oil and petroleum products).

4.2 Specific Gravity

Shall conform to KS M 2002 (Testing methods for specific gravity of crude petroleum and its products).

4.3 Low Temperature Viscosity

Shall conform to ASTM D 2983 (Test method for low-temperature viscosity or automotive fluid lubricants measure by brokfield viscometer).

4.4 Kinematic Viscosity

Shall conform to KS M 2014 (Testing methods for kinematic viscosity and calculating method for viscosity index of crude oil and petroleum products).

4.5 Flashing Point

Shall conform to KS M 2010 (Testing method for flash point of crude oil and petroleum products).

4.6 Pour Point

- Shall conform to KS M 2016 (Testing methods for pour point of crude oil and petroleum products).
- 4.7 Copper Plate Corrosion
Shall conform to KS M 2018 (Testing method copper corrosion of petroleum products).
- 4.8 Foaming Property
Shall conform to KS M 2025 (Testing method for foaming characteristics of petroleum products).
- 4.9 Residual Carbon Element
Shall conform to KS M 2017 (Testing method for carbon residual of petroleum products).
- 4.10 Neutralization Valence
Shall conform to KS M 2004 (Testing methods for neutralization number of petroleum products).
- 4.11 Calcium Sulphate Ingredients
Shall conform to KS M 2006 (Testing method for sulfated ash of petroleum products).
- 4.12 Sonic Shear Stability
Shall conform to ASTM D 2603 (Sonic shear stability of polymer containing oil).
- 4.13 Sulfur Ingredient
Shall conform to KS M 2027 (Testing method for heat of combustion of liquid hydrocarbon fuel by bomb calorimeter).
- 4.14 Water Ingredient
Shall conform to KS M 2058 (Testing method for water content of crude oil and petroleum products).

Table 2

Items			Kind 1	Kind 2	Kind 3	Testing method
			O-FD01	O-FM11	O-FF21	
Specific gravity			Report			4.2
Physical appearance			Report			—
Low temperature viscosity (CP)	-18°C	Report			1400 or less	4.3
	-30°C	Report	4000 or less	Report		
	-40°C	50000 or less	20000 or less	55000 or less		
Kinematic viscosity (cst)	40°C	Report			4.4	
	100°C	6.0 or more		7.0 or more		
Viscosity index		Report			140 or more	
Flashing point (°C)		170 or more	174 or more	175 or more	4.5	
Pour point (°C)		-40 or less	-45 or less	-40 or less	4.6	
Copper plate corrosion		1 or less (b)			4.7	
Foaming property (mL)	24°C	100 or less -10 or less	50 -0 or less	100 -0 or less	4.8	
	93.5°C	100 or less -10 or less	50 -0 or less	100 -0 or less		
	93.5 after 24°C	100 or less -10 or less	50 -0 or less	100 -0 or less		
Residual carbon (wt %)		Report			4.9	
Neutralization valence (mgKOH/g)	TAN	2.0 or less			4.10	
	TBN	0.7 or more				
Calcium sulphate ingredient (wt %)		Report			4.11	
Sonic shear stability	40°C	Report	10 or less	Report	4.12	
28 x 10 KHZ x 0.5Hr x 30mL	100°C	30 or less	10 or less	30 or less		
Sulfer ingredient (wt %)		1.0 or less			4.13	
Water ingredient (Vol %)		No water ingredients			4.14	
Rust preventive property		No rust			4.15	
Rusting stability 150°C 96Hr	Viscosity ratio	40°C	Report	0.9 - 1.2	Report	4.16
		100°C	Report	0.9 - 1.2	Report	
	TAN increase (mgKOH/gr)		Report			
	TBN variation (mgKOH/gr)		Report			
	Lacquer degree		Report	No adherence	Report	
	Normal pentane insoluble ingredients (wt%)		Report	0 - 10 or less	Report	