



DRAFT EAST AFRICAN STANDARD

Engine oils — Specification

EAST AFRICAN COMMUNITY

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Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the Principles and procedures for development of East African Standards. XXXXXX.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 068, *Petroleum and petroleum Products*.

This second edition cancels and replaces the first edition (EAS 159:2000), which has been technically revised.

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

Automotive Engine oils — Specification

1 Scope

This Draft East African Standard specifies performance requirements, sampling and test methods for automotive type internal combustion engine oil meeting or exceeding API service category "SJ" for gasoline engines and "CH-4" for diesel engines

This standard does not cover the chemical requirements for oils as these vary with the type of additive used in the formulation of a particular oil for a particular category.

NOTE Requirements that should be specified by the purchaser and those that should be agreed upon are listed Annex A.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

API Publication 1509, *Engine service classification system and guide to crank case oil selection*

ASTM D287, *Test for API gravity for crude petroleum products by hydrometer method*

ASTM D 445, *Test for dynamic viscosity for petroleum products*

ASTM D 874, *Test for sulfated ash from lubricating oils and additives*

ASTM D 2896, *Determination of TBN*

ASTM D 4485, *Specification for performance requirements for automotive engine oils*

ASTM D 4628, *Analysis of Ba, Ca, Mg, and Zn in unused lubricating oils by Atomic Absorption Spectrophotometry*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

acceptable

in relation to the certification mark and to consignment inspections carried out by and acceptable to the National Bureau of Standards.

**3.2
additive**

material added to the lubricant for the purpose of imparting new properties or enhancing existing properties

**3.3
API Service Category**

Internal combustion engine service classification, as defined in API 1509

**3.4
S**
prefix are intended for use in automotive gasoline application such as passenger cars, light trucks and vans

**3.5
C**
prefix are intended for use in diesel powered vehicle

4 Requirements

4.1 General Requirements

4.1.1 Engine oil shall consist of base oil complying with EAS 1103 mixed with functional additives

4.1.2 Engine oil shall remain homogeneous free from water, suspended matter, sediment, and other impurities

4.1.3 When so required by the purchaser, the ash content or the phosphorus content or both shall not exceed the value agreed upon between supplier and purchaser.

4.1.4 Engine oil shall be of mono-grade or multi-grade

4.1.5 If double specification is considered both performance level shall meet the minimum performance of this standard

NOTE: For an oil that is formulated for diesel engine applications and meets both C and S Categories, the C Service Category should be put first so that the consumer can recognize that the oil is primarily a diesel engine oil but also meets S Service Category requirements. For an oil that is formulated for passenger car motor oil applications and meets both S and C Service Categories, the S Service Category should be put first so that the consumer can recognize that the oil is primarily a passenger car motor oil but also meets C Category requirements.

4.2 Specific requirements

Specific requirements for monograde petrol and diesel engine oil shall be a given in Table 1 when tested in accordance with test method specified therein.

Table 1 — Specific requirements for monograde Petrol and Diesel engine oil

SAE Grade		0W	5W	10W	15W	20W	25W	5	10	15	20	30	40	50	60	Test Method
Characteristic		Requirements														
Kinematic viscosity at 100°C, mm²/s	Min	3.8	3.8	4.1	5.6	5.6	9.3	5.6	5.6	5.6	5.6	9.3	12.5	16.3	21.9	ASTM D 445
	Max							9.3	9.3	9.3	9.3	12.5	16.3	21.9	26.1	ASTM D 445
Viscosity index Min		90	90	90	90	90	90	90	90	90	90	90	90	90	90	ASTM D 2270
Sulfated ash, %wt Max		1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	ASTM D 874
Total Base Number, mgKOH/g Min		7	7	7	7	7	7	7	7	7	7	7	7	7	7	ASTM D 2896
Pour Point, °C Max		-30	-30	-30	-21	-21	-18	-30	-30	-21	-21	-18	-9	-9	-9	ASTM D 97
Flash Point, °C Min		180	180	204	210	213	213	180	204	210	213	218	224	232	235	ASTM D 92
Phosphorous % m/m Max		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	ASTM D 5185
																ASTM D 4951
Note: In the event of a missing viscosity grade classification, please refer to the latest SAE J300.																

Table 2 — Specific requirement for multi-grade engine oils

SAE Grade		5W20	0W30	5W30	5W40	10W30	10W40	15W40	20W40	25W40	20W50	25W50	Test Method
Characteristic		Requirements											
Kinematic viscosity at 100°C, mm ² /s	min.	3.8	3.8	3.8	3.8	4.1	4.1	5.6	5.6	9.3	5.6	9.3	ASTM D 445
	max.	9.3	12.6	12.6	16.3	12.6	16.3	16.3	16.3	16.3	21.9	21.9	
Viscosity index, min.		120	120	120	120	120	120	120	120	120	120	120	ASTM D 2270
Sulfated ash, %wt , max.		1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	ASTM D 874
Total Base Number, mgKOH/g min.		7	7	7	7	7	7	7	7	7	7	7	ASTM D 2896
Pour Point, °C ,max.		-35	-35	-30	-30	-30	-30	-21	-21	-18	-18	-9	ASTM D 97
Flash Point, °C, min.		180	204	190	204	204	204	210	213	213	213	213	ASTM D 92
Phosphorous % m/m, max.		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	ASTM D 5185
													ASTM D 4951
Note: In the event of a missing viscosity grade classification, please refer to the latest SAE J300.													

5 Packaging

5.1 Engine oil shall be packaged in suitable containers that will safeguard their quality during transportation and storage.

5.2 Only containers of the same size filled with the product from the same batch shall be packaged together.

6 Labelling

6.1 The following information shall be legibly and indelibly labelled on each container

- a) product name as “Petrol Engine oil or Diesel Engine oil or both”
- b) name and physical address of the manufacturer, trade mark or distributor
- c) API service classification
- d) SAE viscosity grade
- e) net content
- f) batch number
- g) date of manufacture and expiry
- h) country of origin

6.2 For bulk transportation, the above information shall be in the documentation accompanying the product.

6.3 Engine oil packaged in bulk tankers, the batch identification shall be marked on the consignment documents:

6.4 Engine oil recommended for use in both petrol and diesel engines, shall meet the minimum requirements for both categories or types of oils stipulated in this standard.

Bibliography

EAS159, *Engine oils specification*.

