

[NOT MEASUREMENT
SENSITIVE]

A-A-52306A

September 15, 1995

SUPERSEDING

A-A-52306

November 6, 1992

COMMERCIAL ITEM DESCRIPTION

LUBRICATING OIL, HEAVY-DUTY DIESEL ENGINE

The General Services Administration has authorized the use of this commercial item description (CID) for all federal agencies.

1. SCOPE.

This CID describes lubricating oils meeting the American Petroleum Institute (API) performance categories CF, CF-2, and CG-4, and SAE J300. Lubricating oils covered by this CID are only intended for use in compression-ignition (diesel) engines in tactical-wheeled vehicles and are not intended for use in transmissions or hydraulic systems. This CID is not a replacement for MIL-L-2104 "Lubricating Oil, Internal Combustion Engine, Tactical/Combat Service".

2. CLASSIFICATION.

2.1 Viscosity grades. Lubricating oils shall be of the following grades:

Viscosity Grade	Performance Level
SAE 15W-40	CF, CF-2, CG-4
SAE 30	CF, CF-2
SAE 40	CF, CF-2

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any other data which may improve this document should be sent by letter to: U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-E, Warren, MI 48397-5000.

FSC 9150

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A-A-52306A

3. SALIENT CHARACTERISTICS.

3.1 Materials. Lubricating oils shall be derived from petroleum fractions, synthetically-produced fractions, or a combination of the two types of products. They may be virgin, re-refined stocks or a combination thereof. The stocks shall be compounded with such functional additives (detergents, dispersants, oxidation inhibitors, corrosion inhibitors, etc.) as are necessary to meet the specified requirements. The use of recovered materials made in compliance with regulatory requirements is acceptable provided that all requirements of this CID are met (see 4.3).

3.2 Performance. Lubricating oils shall meet the SAE J300 and the API performance levels identified herein and described in SAE J183 and ASTM D 4485. Lubricating oils shall carry the API donut symbol and shall meet all the requirements and characteristics for the performance levels herein specified (see 2.1).

3.2.1 Storage and compatibility. Lubricating oils shall show no evidence of separation or color change when tested in accordance with FED-STD-791, method 3470, using the designated reference oils as required by the test. Reference oils can be obtained from SAE. A test report for each formulation offered must be provided at the time of solicitation.

3.3 Physical and chemical requirements. Lubricating oils shall meet all the physical and chemical properties required in SAE J300 and those in table I for all the above specified performance levels (see 2.1). Typical values are to be provided for each salient physical and chemical property listed below for each formulation offered at the time of solicitation and for those properties required to meet the performance levels herein specified (see 2.1) and in SAE J300 (see 7.2).

3.3.1 Formulation data. The contractor shall provide the name, type, percent and manufacturer of all base stocks and additive packages for each formulation to be supplied under contract or order, or used in performance testing. Each formulation must be identified by a formula number or oil code, and if more than one code is used for a formulation, then all codes associated with that formulation must be indicated. In addition, the contractor must identify which formulation was used to run each performance test. This information shall be provided to the contracting officer at the time of solicitation.

3.3.1.1 Base stocks. The contractor shall identify all base stocks used in each formulation offered or used in performance testing by base stock name, manufacturer, and type of base stock according to Appendix E of API 1509. The data listed in Table E-1 (Appendix E - API 1509) shall be included for all base stocks.

A-A-52306A

3.3.1.2 Additives. The contractor shall identify all additive systems used in each formulation offered or used in performance testing by additive package name, manufacturer and type of additive system (i.e. Detergent Inhibitor (DI), Viscosity Improver Type (OCP, SIP, PMA, etc.), Pour Point Depressant, etc.). If there are read-across between different formulations, then an explanation on how the additive systems relate to one another must be provided.

Table I. Physical and chemical properties of lubricating oils

Property	SAE 15W- 40	SAE 30	SAE 40	ASTM Test Procedure or Federal Test Standard
Viscosity, Kinematic, cSt @ 40 °C	X	X	X	D 445
Viscosity Index	X	X	X	D 2270
Pour Point, °C max.	-23	-18	-15	D 97
Stable Pour Point, °C max.	-23	--	--	FED-STD-791, method 203
Flash Point, °C min.	215	220	225	D 92
Gravity, ° API	X	X	X	D 287
Carbon Residue, mass %	X	X	X	D 524
Sulfated Ash, mass %	X	X	X	D 874
Total Acid Number	X	X	X	D 664
Base Number	X	X	X	D 2896, D 4739
Phosphorus, mass %	X	X	X	D 1091, D 4047, D 5185
Sulfur, mass %	X	X	X	D 2622, D 4927, D 4951, D 5185
Nitrogen, mass %	X	X	X	D 3228, D 4629
Metallic Components, mass%	X	X	X	D 4628, D 4927, D 4951, D 5185

X = Report Typical Value.

4. REGULATORY REQUIREMENTS.

4.1 Hazard Communication Standard. The contractor shall certify that no carcinogenic or potentially carcinogenic constituents are present as defined under the Hazard Communication Standard (29 CFR 1910.1200). The contractor shall provide certification to this effect to the contracting officer or the contracting officer's designated representative.

4.2 Toxicity. Lubricating oils shall have no adverse effect on the health of personnel when used for their intended purpose. Questions pertinent to this effect shall be referred by the contracting activity to the appropriate departmental medical service who will act as an advisor to the

A-A-52306A

contracting agency. The contractor shall have the toxicological formulations and associated information available for review by the contracting activity to evaluate the safety of the material for proposed use.

4.3 Recovered materials. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR). When re-refined base stocks are sought, the minimum content to be used in the formulation shall be indicated in the contract or solicitation (see 7.2).

5. QUALITY ASSURANCE PROVISIONS.

5.1 Responsibility for inspection. The contractor is responsible for the performance of all inspections (examinations and tests).

5.2 Contractor certification. The contractor shall certify and maintain substantiating evidence that the product offered meets the salient characteristics of this CID, and that the product conforms to the producer's own drawings, specifications, standards, and quality assurance practices. The contractor shall provide the required information in a tabulated format and with enough clarity so that the formulation of the tested product can be traced and compared to the offered product(s). The contractor shall provide a summary of performance data, consisting of test reports, substantiating that the product to be supplied under this CID meets the SAE, ASTM, and API documents cited under 3.2. and 3.3 above. The contractor shall provide test results of the physical and chemical properties indicated under 3.3 above. The Government reserves the right to require proof of such performance prior to delivery and thereafter as may be otherwise provided for under the provisions of the contract.

5.3 Market acceptability (MA). The contractor shall provide products which have a proven market record based on the number of items sold, length of time the product has been on the market, and reliability and performance of the products as required under the contract or solicitation (see 7.2).

5.4 Inspection and testing. The inspection and testing of products to be supplied under this CID shall be as specified in the contract or order (see 7.2). The inspection and testing of products to be supplied under this CID shall use the following tolerances. These will be used to determine acceptability of the physical and chemical properties of SAE grade products supplied under contract unless otherwise specified. The typical properties of the offered product(s) (see 3.3) will be used to assign tolerances according to table II. In no case will tolerances assigned, based on the typical properties provided, be outside the established limits indicated, including the SAE J300 viscosity requirements.

A-A-52306A

Table II. Tolerances for lubricating oil properties

Property	Tolerance Range <u>1/</u>
Kinematic Viscosity @ 100°C	$X \pm 1.00$ cSt, but must fall within the herein specified limits.
Kinematic Viscosity @ 40°C	$X \pm 10$ cSt.
Apparent Viscosity, cP; @ -15°C & @ -20°C	SAE 15W-40 must meet requirement according to SAE J300
High Temperature/High Shear	SAE 15W-40 must meet requirement according to SAE J300
Pumpability @ -20°C	SAE 15W-40 must meet requirement according to SAE J300
Viscosity Index	SAE grades 30 & 40 shall be ≥ 80 .
Pour Point	Must meet requirement indicated in the physical and chemical requirements.
Flash Point	Meet requirement indicated in the physical and chemical requirements.
Gravity	$X \pm 1.0$ °API
Total Base Number	$X \pm 1$ TBN number
Sulfur	$0.90 x$ (typical value), min. & $1.20 x$ (typical value), max
Nitrogen	$0.90 x$ (typical value); minimum
Other Elements: Zinc, Phosphorus, Calcium, Magnesium, Barium, Sodium, Copper, Boron, & Molybdenum.	$0.90 x$ (typical value); min. , and $1.20 x$ (typical value); max

1/ Tolerances will be calculated from the accepted typical physical and chemical properties provided at the time of the solicitation for each formulation identified.

6. PACKAGING.

Preservation, packing, and marking shall be as specified in the contract or order. The container will be as specified in the contract or order (see 7.2).

7. NOTES.

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

A-A-52306A

7.1 Addresses for obtaining copies of referenced documents

7.1.1 Copies of FED-STD-791 are available from the Defense Printing Service Detachment Office, Bldg. 4D (Customer Service), 700 Robbins Avenue, Philadelphia, PA 19111-5094.

7.1.2 Copies of 29 CFR 1910.1200 are available from the Superintendent of Documents, Government Printing Office, Washington, DC 20402.

7.1.3 Copies of API 1509 “Engine Oil Licensing and Certification System” are available from American Petroleum Institute, Marketing Department, Program Manager, ESCS Program, 1220 L Street N.W., Washington, D.C. 20005

7.1.4 Copies of ASTM D 92, D 97, D 287, D 445, D 524, D 664, D 874, D 1091, D 2270, D 2622, D 2896, D 3228, D 4047, D 4485, D 4628, D4629, D 4739, D 4927, D 4951, and D 5185 are available from the American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, PA 19103.

7.1.5 Copies of SAE J183 and SAE J300 are available from Society of Automotive Engineers (SAE), 400 Commonwealth Drive, Warrendale, PA 15096. Reference oils for the compatibility and stability test can be obtained by writing to SAE at the above address, ATTN: Land and Sea Department.

7.2 Ordering data. Acquisition documents must specify the following:

- a. Title, number and date of this CID.
- b. Quantity and SAE grade of oil required.
- c. Type and unit of issue required.
- d. Typical values for all physical and chemical properties required in 3.3.
- e. If re-refined base stocks are sought, the minimum content to be used in the formulation.
- f. When this CID is used for procurement, the certification clause must appear in the solicitation.
- g. Applicable market acceptability requirements.
- h. Inspection and testing levels required.
- i. If inspection and testing tolerances should be other than as specified.
- j. Selection of applicable packaging requirements and container.

7.3 National Stock Numbers (NSN). The following NSN’s are for use by the Government and do not constitute a requirement on the contractor, unless required by the contract or order. The lubricating oils provided under this CID can be ordered using the following NSN’s:

A-A-52306A

National Stock Numbers	SAE Viscosity Grade	Unit of Issue
9150-01-352-2962 9150-01-351-9018	15W-40	5 gal plastic container 55 gal drum
9150-01-351-9016 9150-01-352-8090 9150-01-351-9015	30	Box of 12 1-qt. plastic bottles 5 gal plastic container 55 gal drum
9150-01-352-8091	40	55 gal drum

MILITARY INTERESTS:**Custodians:**

Army - AT
Navy - SH
Air Force - 68

Review activities:

Army - AR, AV, MD-1, SM
Navy - OS, SA, YD-1
Air Force - 11
DLA - GS, PS

Industry associations:

ASTM
SAE

CIVILIAN AGENCY COORDINATING ACTIVITY

GSA - FSS

PREPARING ACTIVITY:

Army - AT

(Project 9150-1130)