SAE International™

SURFACE VEHICLE STANDARD

SAE J2363

CAN-CELLED JAN2008

Issued 1998-11
Cancelled 2008-01

Superseding J2363 AUG2005

Lubricating Oil for Wheeled Military Vehicles with Heavy-Duty Diesel Engines

1. Scope

1.1 General

This SAE Standard describes lubricating oils meeting the physical, chemical and performance requirements of American Petroleum Institute (API) performance categories CF and CF-2, CI-4, supplement CI-4 PLUS, and SAE J300. These oils are suitable for the lubrication of wheeled vehicles with compression-ignition (diesel) engines. This document supersedes the military's Commercial Item Description (CID) A-A-52306.

1.2 Intended Use

The lubricating oils described by this document are only intended for use in the engines of Tactical Wheeled and administrative vehicles equipped with diesel engine systems. The multigrade oils are suitable for use in 4-cycle diesel engines while the monograde oils are preferred for use in high output 2-cycle diesel engines. These lubricating oils are not a replacement for SAE J2359 (Lubricating Oil, Internal Combustion Engine, Military Combat/Tactical Service), nor is it intended for use in transmissions or hydraulic systems.

1.3 Rationale

The conversion of the commercial item descriptions (CID) AA-52306 to SAE J2363 in November 1998 was done as an effort to align military needs with commercial manufacturers requirements and suppliers products. It is our belief that the API Engine Oil Licensing and Certification System (EOLCS), the American Chemistry Council (ACC) Petroleum Additives Product Approval Code of Practice provide a robust framework of requirements and oversight to allow the Department of Defense to purchase these products directly, with the understanding that only products with a formal API license and meeting the most current Heavy Duty Diesel Engine Oil requirements will be procured.

2. References

2.1 Applicable Publications

The following publications form a part of this specification to the extent specified herein. Unless otherwise specified, the latest issue of SAE publications shall apply.

2.1.1 SAE PUBLICATIONS

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J300—Engine Oil Viscosity Classification
SAE J2359—Lubricating Oil, Internal Combustion Engine, Military Combat/Tactical Service

2.1.2 API PUBLICATION

Available from American Petroleum Institute, Marketing Department Program Manager, ESCS Program, 1220 L Street NW, Washington, DC 20005.

API 1509—The API Engine Oil Licensing and Certification System

2.1.3 ASTM PUBLICATIONS

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM D 92—Test Method for Flash and Fire Points by Cleveland Open Cup
ASTM D 97—Test Methods for Pour Point of Petroleum Oils
ASTM D 287—Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method)
ASTM D 4485—Standard Specification for Performance of Engine Oils
ASTM D 4629—Test Method for Organically Bound Trace Nitrogen in Liquid Petroleum Hydrocarbons by Oxidative Combustion and Chemiluminescence Detection
ASTM D 4951—Determination of Additive Elements in Lubricating Oils by Inductively Coupled Plasma Atomic Emission Spectrometry
ASTM D 5185—Test Method for Determination of Additive Elements, Wear Metals, and Contaminants in Used Lubricating Oils by Inductively Coupled Plasma Atomic Emission Spectrometry

2.1.4 GOVERNMENT PUBLICATIONS

Available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

FED-STD-313—Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities
FED-STD-791—Lubricants, Liquid Fuels, and Related Products; Methods of Testing

2.1.5 U.S. DEPARTMENT OF LABOR (DOL) (OSHA)

Available from the OSHA Publication Office, Room S-4203, 200 Constitution Avenue, NW, Washington, DC 20210.

OSHA 29 CFR 1910.1200—Hazard Communication; Interpretation Regarding Lubricating Oils

3. Classification

3.1 Viscosity Grades

The lubricating oils shall be of the grades in Table 1:

TABLE 1—VISCOSITY GRADES

Viscosity Grade	Performance Level
SAE 5W-40	CI-4 PLUS
SAE 15W-40	CI-4 PLUS
SAE 30	CF, CF-2
SAE 40	CF, CF-2

4. Salient Characteristics

4.1 Materials

The engine lubricating oils shall be derived from petroleum fractions, synthetically-produced fractions, or a combination of the two types of products. They may be virgin or re-refined stocks or a combination thereof. The stocks shall be compounded with such functional additives (detergents, dispersants, oxidation inhibitor, corrosion inhibitors, etc.) as necessary to meet the specified requirements (see Sections 5 and 6).

4.2 Performance

The engine lubricants shall meet the SAE J300, the API performance level identified herein and described in API Publication 1509. The lubricating oils shall carry the API donut symbol and shall meet all the requirements and characteristics for the performance level herein specified (see 3.1).

4.3 Physical and Chemical Requirements

The lubricating oils shall meet all the physical and chemical properties required for all the previously specified performance levels (see 3.1), SAE J300, and those in Table 2. Typical values are to be provided for each salient physical and chemical property listed in Table 2 for each formulation offered at the time of pre-review (see 6.4) and for those properties required to meet the performance level herein specified (see 3.1 and 4.2).

TABLE 2—LUBRICATING OIL PROPERTIES

Property	SAE 5W-40	SAE 15W-40	SAE 30	SAE 40	ASTM Test Procedure or Federal Test Method Standard (FTMS)
Pour Point, °C max.	-40	-25	-18	-15	D 97
Stable Pour Point, °C max.	-40	-25	-18	-15	FTM 203
Flash Point, °C min.	210	215	220	225	D 92
Gravity, °API	X	X	X	X	D 287
Sulfated Ash, Mass %	X	X	X	X	D 874
Phosphorus, Mass %	X	X	X	X	D 4951, D 5185
Sulfur, Mass %	X	X	X	X	D 4951, D 5185
Nitrogen, Mass %	X	X	X	X	D 4629
Metallic Components, Mass %	X	X	X	X	D 4951, D 5185

X = Report Typical Value.

4.3.1 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 Lubricant Review Institute Engine Oil Review Committee during the pre-review process (see 6.4).

4.3.1.1 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. This information shall be provided to the Lubricant Review Insitute Engine Oil Review Committee during the pre-review process (see 6.4).

4.3.1.2 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. This information shall be provided to the Lubricant Review Insitute Engine Oil Review Committee during the pre-review process (see 6.4).

5. Regulatory Requirements

5.1 Hazard Communication Standard

The base stocks used shall not be considered carcinogenic or potentially carcinogenic as defined under the Hazard Communication Standard OSHA 29 CFR 1910.1200.

5.2 Toxicity

The engine lubricating oil shall have no adverse effect on the health of personnel when used for its 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 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.

5.3 Recovered Material

The offeror/contractor is encouraged to use recovered materials in accordance with Public Law 94-580 to the maximum extent possible. When re-refined base stocks are sought, the minimum content to be used in the formulation shall be indicated in the contract or solicitation.

6. Quality Assurance Provisions

6.1 Contractor Certification

The contractor shall certify and maintain substantiating evidence, that the product offered meets the salient characteristics of this document, and that the product conforms to the producer's own drawings, specifications, standards, quality assurance practices, and the information provided in 6.4.

6.2 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.

6.3 Inspection and Test

The inspection and testing of products to be supplied under this document shall be as specified in the contract or order.

6.4 Pre-Review Process

Awards will be made only for products which have been pre-reviewed by the Lubricant Review Institute Engine Oil Review Committee. The attention of the contractors is called to the requirement and manufacturers are urged to arrange to have their products pre-reviewed in order that they may be eligible to be awarded contracts or orders for the products covered by this document. Copies of the Lubricants Review Institute Engine Oil procedures are available from the Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096-0001, Attention: Secretary of the Lubricant Review Institute.

6.5 Qualified Products List

Upon satisfactory review by the Lubricant Review Institute Engine Oil Review Committee, the product(s) will be listed on the Performance Review Institute's (PRI) Qualified Products List (QPL). This will be made available through the PRI website at www.pri.sae.org.

7. Packaging

7.1 Preservation, Packaging, Packing, Labeling, and Marking

Preservation, packaging, labeling, and marking shall be as specified in the contract or order. The container will be as specified in the contract or order.

8. Notes

8.1 Ordering Data

The procuring agency should specify the preferred options permitted herein and include the following information in procurement documents: