



SURFACE VEHICLE RECOMMENDED PRACTICE

J1423™

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(R) Classification of Energy Conserving and Resource Conserving Engine Oil
for Passenger Cars, Vans, Sport Utility Vehicles, and Light-Duty Trucks

RATIONALE

This revision to this SAE Recommended Practice is necessary after the introduction of ILSAC GF-6A, GF-6B, and API SP categories to include the API SP Resource Conserving and the use of the ASTM Sequence VIE and Sequence VIF test procedures.

FOREWORD

Automotive engine oils are classified by viscosity as described in SAE J300 and by certain engine performance and service characteristics as described in SAE J183. This SAE Recommended Practice is a classification for engine oils that have energy conserving or resource conserving characteristics under certain operating conditions and are categorized as Energy Conserving or Resource Conserving. These energy/resource conserving properties are supplemental to the performance requirements of the API service category or categories that are technically described in SAE J183. Engine oils meeting API SN, API SP, and ILSAC GF-6 requirements for fuel economy, phosphorus retention, TEOST 33C, and emulsion retention may be licensed through API as Resource Conserving.

1. SCOPE

This SAE Recommended Practice was developed cooperatively by SAE, ASTM, and API to define and identify energy conserving or resource conserving engine oils for passenger cars, vans, sport utility vehicles, and light-duty (3856 kg [8500 pounds] GVW or less) trucks.

2. REFERENCES

2.1 Applicable Documents

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

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J183 Engine Oil Performance and Engine Service Classification (Other than Energy Conserving or Resource Conserving)

SAE J300 Engine Oil Viscosity Classification

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https://www.sae.org/content/J1423_202111

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SAE WEB ADDRESS:

2.1.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org

- ASTM D4485 Performance of Active API Service Category Engine Oils
- ASTM D6202 Standard Test Method for Automotive Engine Oils on the Fuel Economy of Passenger Cars and Light-Duty Trucks in the Sequence VIA Spark Ignition Engine
- ASTM D6335 Standard Test Method for Determination of High Temperature Deposits by Thermo-Oxidation Engine Oils Simulation Test
- ASTM D6837 Standard Test Method for Measurement of Effects of Automotive Engine Oils on Fuel Economy of Passenger Cars and Light-Duty Trucks in Sequence VIB Spark Ignition Engine
- ASTM D7320 Standard Test Method for Evaluation of Automotive Engine Oils in the Sequence IIIG, Spark-Ignition Engine
- ASTM D7589 Standard Test Method for Measurement of Effects of Automotive Engine Oils on Fuel Economy of Passenger Cars and Light-Duty Trucks in Sequence VID Spark Ignition Engine
- ASTM D7563 Standard Test Method for Evaluation of the Ability of Engine Oil to Emulsify Water and Simulated Ed85 Fuel
- ASTM D8111 Standard Test Method for Evaluation of Automotive Engine Oils in the Sequence IIIH, Spark-Ignition Engine
- ASTM D8114 Standard Test Method for Measurement of Effects of Automotive Engine Oils on Fuel Economy of Passenger Cars and Light-Duty Trucks in Sequence VIE Spark Ignition Engine
- ASTM D8226 Standard Test Method for Measurement of Effects of Automotive Engine Oils on Fuel Economy of Passenger Cars and Light-Duty Trucks in Sequence VIF Spark Ignition Engine

ASTM Research Report No. RR:D02:1364, "Sequence VIA Test Development," October 1995

ASTM Research Report No. RR: D02-1469, "Development of Standard Test Method for Measurement of the Effects of Automotive Engine Oils on the Fuels Economy of Passenger Cars and Light Duty Trucks in the Sequence VIB Spark Ignition Engine Test"

ASTM Research Report No. RR: D02-1678, "Research Report to D7589 Standard Test Method for Measurement of Effects of Automotive Engine Oils on Fuel Economy of Passenger Cars and Light-Duty Trucks in Sequence VID Spark Ignition Engine"

ASTM Research Report No. RR: D02-2010. "Research Report to D8114 Standard Test Method for Measurement of Effect of Automotive Engine Oils on Fuel Economy of Passenger Cars and Light-Duty Trucks in Sequence VIE Spark Ignition Engine and D8226 Standard Test Method for Measurement of Effects of Automotive Engine Oils on Fuel Economy of Passenger Cars and Light-Duty Trucks in Sequence VIF Spark Ignition Engine"

2.1.3 API Publications

Available from API, 200 Massachusetts Avenue, NW, Suite 1100, Washington, DC 20001, Tel: 202-682-8000, www.api.org.

API Publication No. 1509, 20th Edition, "Engine Oil Licensing and Certification System"

3. ASTM AND API DEFINITION, TEST PROCEDURE, AND PASSING LIMITS

ASTM and API have developed a definition, test procedures, and passing limits for energy conserving and resource conserving engine oils, variously based on the Sequence VIA, the Sequence VIBSJ (replacing the VIA), Sequence VIB, Sequence VID, Sequence VIE Sequence VIF, Phosphorus Retention, Emulsion Retention and TEOST 33C tests.

3.1 Definition

Energy conserving engine oils are lubricants that demonstrate reduced fuel consumption when compared to specified ASTM reference oil(s) and run in the ASTM Sequence VIA, VIB, or VIBSJ procedures (see 3.3.1, 3.3.2, 3.3.3, and Tables 1 to 3). The Sequence VIA, Sequence VIB and VIBSJ tests are obsolete and no longer supported by ASTM or the sponsor. Therefore, Energy Conserving classifications are no longer licensable with API SJ, SL or SM categories.

Resource conserving engine oils are lubricants that demonstrate reduced fuel consumption when compared to specified ASTM reference oil(s) and run in the ASTM Sequence VID, Sequence VIE or Sequence VIF procedures (see 3.3.4, 3.3.5, 3.3.6, and Tables 4 to 7) and demonstrate acceptable phosphorus and emulsion retention and high temperature deposit control.

**Table 1 - Energy conserving limits in conjunction
with API SJ category (ILSAC GF-2 fuel economy limits)**

Viscosity Grade	Test Type	Performance Parameter	Limit
0W-20 and 5W-20	VIA	FEI	1.4% min
	VIBSJ	FEI	1.7% min
Other 0W and 5W multi-grades	VIA	FEI	1.1% min
	VIBSJ	FEI	1.3% min
All 10W multi-grades	VIA	FEI	0.5% min
	VIBSJ	FEI	0.6% min
All others	VIA	FEI	0.5% min
	VIBSJ	FEI	0.6% min

**Table 2 - Energy conserving limits in conjunction
with API SL category (ILSAC GF-3 fuel economy limits)**

Viscosity Grade	Test Type	Performance Parameter	Limit
0W-20 and 5W-20	VIB	FEI 1	2.0% min
		FEI 2	1.7% min
0W-30 and 5W-30	VIB	FEI 1	1.6% min
		FEI 2	1.3% min
		FEI 1+FEI 2	3.0% min
All others	VIB	FEI 1	0.9% min
		FEI 2	0.6% min
		FEI 1+FEI 2	1.6% min