



AMERICAN PETROLEUM INSTITUTE
EOLCS™



API Update

Kevin Ferrick

40th Automotive Petroleum Industry Forum

AMERICAN PETROLEUM INSTITUTE (API)

- Only national trade association representing all facets of oil and natural gas industry, which supports 10.3 million U.S. jobs and nearly 8 percent of U.S. economy
- API's more than 625 members include large integrated companies, as well as exploration and production, refining, marketing, pipeline, and marine businesses, and service and supply firms

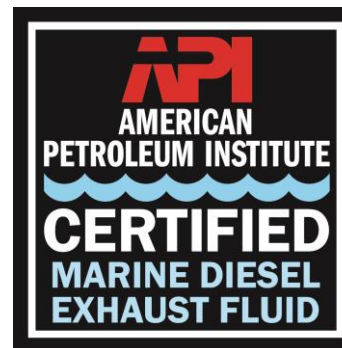
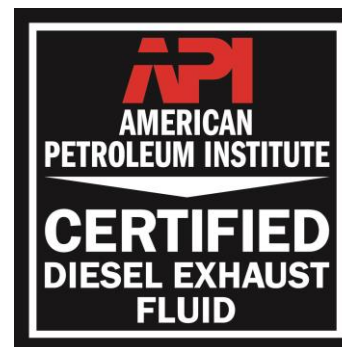
API ENGINE OIL STANDARDS

- 70+ years setting engine oil performance standards
 - API 1509, *Engine Oil Licensing and Certification System*
 - API 1525, *Bulk Oil Testing, Handling and Storage Guidelines*
 - API 1525A, *Bulk Engine Oil Chain of Custody and Quality Documentation*
- 30+ years licensing oils against standards
- 25 years auditing licensed and unlicensed oils

LUBRICANTS STANDARDS POLICY/STANDARDS GROUP CHARGE

- Guides Institute's efforts on matters related to engine oils
 - Development of new and maintenance of current engine oil performance standards
 - Engine Oil Licensing and Certification System (EOLCS)
 - Motor Oil Matters (MOM) Program
 - Aftermarket Audit Program
- Maintenance of lubricant- and EOLCS-related publications and liaison efforts with industry groups
 - Auto Alliance
 - International Lubricants Specification Advisory Committee (ILSAC)
 - Truck and Engine Manufacturers Association (EMA)
 - Independent Lubricant Manufacturers Association (ILMA)
 - American Chemistry Council (ACC)
 - National Conference on Weights and Measures (NCWM)
 - SAE
 - ASTM

PROGRAM MARKS



EOLCS/DEF LICENSES

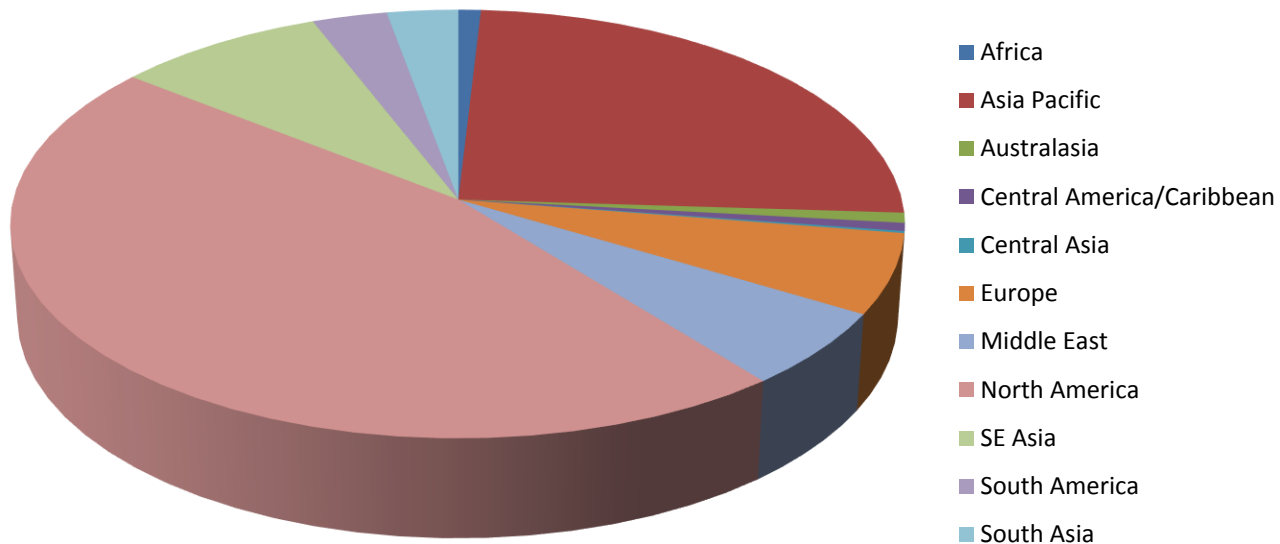
(4/11/2018)

- 662 licensed oil marketers
 - In 58 countries
 - 14,800 licensed products
- 71 licensed DEF marketers
 - In 6 countries
 - 143 licensed products

Licensees and products shown in online Directories

EOLCS LICENSES BY REGION

(04/11/2018)



LICENSABLE CERTIFICATION MARK STANDARD

ILSAC STANDARD FOR PASSENGER CAR ENGINE OILS

Name	Status	Service
GF-5	Current	Introduced in October 2010, designed to provide improved high temperature deposit protection for pistons and turbochargers, more stringent sludge control, improved fuel economy, enhanced emission control system compatibility, seal compatibility, and protection of engines operating on ethanol-containing fuels up to E85.
GF-4	Obsolete	Use GF-5 where GF-4 is recommended.
GF-3	Obsolete	Use GF-5 where GF-3 is recommended.
GF-2	Obsolete	Use GF-5 where GF-2 is recommended.
GF-1	Obsolete	Use GF-5 where GF-1 is recommended.

LICENSABLE API SERVICE SYMBOL GASOLINE STANDARDS

GASOLINE ENGINES (Follow your vehicle manufacturer's recommendations on oil performance levels)

Category	Status	Service
SN	Current	Introduced in October 2010, designed to provide improved high temperature deposit protection for pistons, more stringent sludge control, and seal compatibility. API SN with Resource Conserving matches ILSAC GF-5 by combining API SN performance with improved fuel economy, turbocharger protection, emission control system compatibility, and protection of engines operating on ethanol-containing fuels up to E85.
SM	Current	For 2010 and older automotive engines.
SL	Current	For 2004 and older automotive engines.
SJ	Current	For 2001 and older automotive engines.

LICENSABLE API SERVICE SYMBOL DIESEL STANDARDS

DIESEL ENGINES (Follow your vehicle manufacturer's recommendations on oil performance levels)

Category	Status	Service
CK-4	Current	API Service Category CK-4 describes oils for use in high-speed four-stroke cycle diesel engines designed to meet 2017 model year on-highway and Tier 4 non-road exhaust emission standards as well as for previous model year diesel engines. These oils are formulated for use in all applications with diesel fuels ranging in sulfur content up to 500 ppm (0.05% by weight). However, the use of these oils with greater than 15 ppm (0.0015% by weight) sulfur fuel may impact exhaust aftertreatment system durability and/or oil drain interval. These oils are especially effective at sustaining emission control system durability where particulate filters and other advanced aftertreatment systems are used. API CK-4 oils are designed to provide enhanced protection against oil oxidation, viscosity loss due to shear, and oil aeration as well as protection against catalyst poisoning, particulate filter blocking, engine wear, piston deposits, degradation of low- and high-temperature properties, and soot-related viscosity increase. API CK-4 oils exceed the performance criteria of API CJ-4, CI-4 with CI-4 PLUS, CI-4, and CH-4 and can effectively lubricate engines calling for those API Service Categories. When using CK-4 oil with higher than 15 ppm sulfur fuel, consult the engine manufacturer for service interval recommendations.
CJ-4	Current	For high-speed four-stroke cycle diesel engines designed to meet 2010 model year on-highway and Tier 4 non-road exhaust emission standards as well as for previous model year diesel engines. These oils are formulated for use in all applications with diesel fuels ranging in sulfur content up to 500 ppm (0.05% by weight). However, the use of these oils with greater than 15 ppm (0.0015% by weight) sulfur fuel may impact exhaust aftertreatment system durability and/or drain interval. API CJ-4 oils exceed the performance criteria of API CI-4 with CI-4 PLUS, CI-4, CH-4, CG-4 and CF-4 and can effectively lubricate engines calling for those API Service Categories. When using CJ-4 oil with higher than 15 ppm sulfur fuel, consult the engine manufacturer for service interval.
CI-4	Current	Introduced in 2002. For high-speed, four-stroke engines designed to meet 2004 exhaust emission standards implemented in 2002. CI-4 oils are formulated to sustain engine durability where exhaust gas recirculation (EGR) is used and are intended for use with diesel fuels ranging in sulfur content up to 0.5% weight. Can be used in place of CD, CE, CF-4, CG-4, and CH-4 oils. Some CI-4 oils may also qualify for the CI-4 PLUS designation.
CH-4	Current	Introduced in 1998. For high-speed, four-stroke engines designed to meet 1998 exhaust emission standards. CH-4 oils are specifically compounded for use with diesel fuels ranging in sulfur content up to 0.5% weight. Can be used in place of CD, CE, CF-4, and CG-4 oils.

LICENSABLE API SERVICE SYMBOL DIESEL STANDARDS

FA-4	Current	<p>API Service Category FA-4 describes certain XW-30 oils specifically formulated for use in select high-speed four-stroke cycle diesel engines designed to meet 2017 model year on-highway greenhouse gas (GHG) emission standards. These oils are formulated for use in on-highway applications with diesel fuel sulfur content up to 15 ppm (0.0015% by weight). Refer to individual engine manufacturer recommendations regarding compatibility with API FA-4 oils. These oils are blended to a high temperature high shear (HTHS) viscosity range of 2.9cP–3.2cP to assist in reducing GHG emissions. These oils are especially effective at sustaining emission control system durability where particulate filters and other advanced aftertreatment systems are used. API FA-4 oils are designed to provide enhanced protection against oil oxidation, viscosity loss due to shear, and oil aeration as well as protection against catalyst poisoning, particulate filter blocking, engine wear, piston deposits, degradation of low- and high-temperature properties, and soot-related viscosity increase. API FA-4 oils are not interchangeable or backward compatible with API CK-4, CJ-4, CI-4 with CI-4 PLUS, CI-4, and CH-4 oils. Refer to engine manufacturer recommendations to determine if API FA-4 oils are suitable for use. API FA-4 oils are not recommended for use with fuels having greater than 15 ppm sulfur. For fuels with sulfur content greater than 15 ppm, refer to engine manufacturer recommendations.</p>
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NEXT PCMO

DRAFT GF-6A

- SAE 0W-20, 0W-30, 5W-20, 5W-30, 10W-30
- Phosphorus and sulfur limits same as GF-5
- Seven engine tests proposed
- No TEOST MHT
- NOACK Method B at 15.0%

DRAFT GF-6B

- SAE 0W-16 only
- Any grades less than SAE 0W-16 subject to review before inclusion in GF-6B
- Same seven engine tests and bench tests as GF-6A
- Separate fuel economy improvement limits in Sequence VIF

API SP

- Expected to look a lot like GF-6
- Know more when GF-6 tests in place

DRAFT GF-6/API SP TIMELINE

- Still being reviewed and revised
 - Timeline slip largely due to test development
 - New standards feature seven fired engine tests
- Need time for technology demonstration and API waiting period
- First licensing after tech demo and waiting period

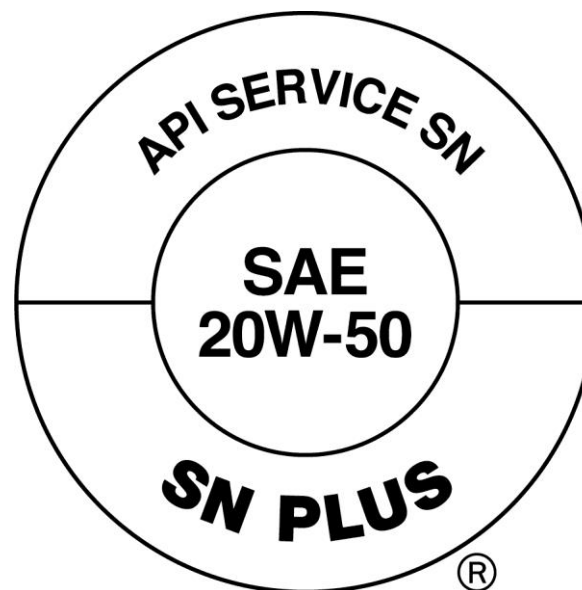


SN PLUS

SN PLUS CLASSIFICATION

- GF-6 development delays resulted in request for new classification to address low-speed pre-ignition (LSPI) in turbocharged direct injection gasoline engines
- Ten automakers made request
- Addition of Sequence IX LSPI test to API 1509 only direct change required
- API Lubricants Standards Group approved request and named classification SN PLUS
- Online system accepting applications
- First licensing May 1

SN PLUS DONUT



LUBRICANTS STANDARDS DEVELOPMENT REVIEW GROUP

MISSION

To evaluate standard-setting processes for engine oils and recommend improvements to stakeholder groups and standard-setting organizations with a material interest in engine oil standards

ISSUE

- Automakers, diesel engine manufacturers, lubricant marketers, additive suppliers, base stock manufacturers, and technical societies have worked collaboratively for decades to develop globally-recognized performance-based engine oil standards for gasoline and diesel engines
- Some companies and organizations participating in the standard-setting processes have encouraged stakeholders to evaluate processes and to consider making changes to improve efficiency and effectiveness
- Members of API Lubricants Standards Group agreed that such an evaluation should take place

TASKS COMPLETED

- Stakeholders impaneled
 - EMA
 - ILSAC
 - ACC
 - Oil Marketers
 - Base Stock Manufacturers
- Group charter adopted
- List of pros and cons of current processes assembled, vetted, and ranked
- Communications plan drafted
- Trial facilitator selected
- Current processes mapped

PROGRESS

- Drafted communications plan
- Developed and vetted pros and cons
- Mapped standard-setting processes
- Debated and debating standard-setting processes
 - Calendar-based (standard every ? years)
 - Needs-based (performance or test need)
- Opened and continuing discussions on backward compatibility and funding models



QUESTIONS?

THANK YOU

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