A Program of ASTM International

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D4485 Information Letter 19-4
Sequence Number 4
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ASTM consensus has not been obtained on this information letter. An appropriate ASTM ballot will be issued in order to achieve such consensus.

TO: D4485 Mailing List

SUBJECT: Add API SN with API SN PLUS to Table X.6.1

On July 9, 2019 the D4485 Surveillance Panel approved changes to D4485-18a to update Table X6.1 Requirements for API Service Category SN, API SN with Resource Conserving, with the addition API SN with SN PLUS.

The text of the revisions is shown in the attachment. This change is effective with the issuance of this information letter.

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Attachment
c: http://www.astmtmc.cmu.edu/ftp/docs/d4485/IL_19-4_D4485.pdf
Distribution: Email

TABLE X6.1 Requirements for API Service Category SN and API SN with Resource Conserving, and API SN with SN Plus

NOTE 1—All oils must meet the requirements of the most recent edition of SAE J300.

NOTE 2—NR = Not required.

	API SN	API SN	API SN with Resource Conserving
	SAE 0W-16, SAE 5W-16, SAE 0W-20, SAE 5W-20, SAE 0W-30, SAE 5W-30, SAE 10W-30	Other Viscosity Grades	All Viscosity Grades
Engine Test Requirements[a]			
ASTM D7320 (Sequence IIIG)			
Kinematic viscosity increase @ 40°C, %	150 (max)	150 (max)	150 (max)
Average weighted piston deposits, merits	4.0 (min)	4.0 (min)	4.0 (min)
Hot stuck rings	None	None	None
Average cam plus lifter wear, µm	60 (max)	60 (max)	60 (max)
Or			
ASTM D8111 (Sequence IIIH)			
Kinematic viscosity increase @ 40°C, %	150 (max)	150 (max)	150 (max)
Average weighted piston deposits, merits	3.7 (min)	3.7 (min)	3.7 (min)
Hot stuck rings	None	None	None
ASTM D6891 (Sequence IVA)			
Average cam wear (7 position avg), µm	90 (max)	90 (max)	90 (max)
ASTM D6593 (Sequence VG)[b]			
Average engine sludge, merits	8.0 (min)	8.0 (min)	8.0 (min)
Average rocker cover sludge, merits	8.3 (min)	8.3 (min)	8.3 (min)
Average engine varnish, merits	8.9 (min)	8.9 (min)	8.9 (min)
Average piston skirt varnish, merits	7.5 (min)	7.5 (min)	7.5 (min)
Oil screen sludge, % area	15 (max)	15 (max)	15 (max)
Oil screen debris, % area	Rate & report	Rate & report	Rate & report
Hot-stuck compression rings	None	None	None
Cold stuck rings	Rate & report	Rate & report	Rate & report
Oil ring clogging, % area	Rate & report	Rate & report	Rate & Report
Or			
ASTM D8256 (Sequence VH)			
Average engine sludge, merits	7.6 (min)	7.6 (min)	7.6 (min)
Average rocker cover sludge, merits	7.7 (min)	7.7 (min)	7.7 (min)
Average engine varnish, merits	8.6 (min)	8.6 (min)	8.6 (min)
Average piston skirt varnish, merits	7.6 (min)	7.6 (min)	7.6 (min)
Oil screen clogging, % area	Rate & report	Rate & report	Rate & report
Hot stuck compression rings	None	None	None
ASTM D7589 (Sequence VID)[c]			
SAE XW-16 viscosity grade			
FEI SUM	NR	NR	2.8% min
FEI 2			1.3% min after 100 hours aging
SAE XW-20 viscosity grade			
FEI SUM			2.6% min
FEI 2			1.2% min after 100 hours aging
SAE XW-30 viscosity grade			
FEI SUM			1.9% min
FEI 2			0.9% min after 100 hours aging
SAE 10W-30 and all other viscosity grades not listed above			
FEI SUM			1.5% min

FEI 2			0.6% min after 100 hours aging
ASTM D8114 (Sequence VIE)[c]			
SAE XW-20 viscosity grade			
FEI SUM			3.2% min
FEI 2			1.5% min after 100 hours aging
SAE XW-30 viscosity grade			
FEI SUM			2.5% min
FEI 2			1.2% min after 100 hours aging
SAE 10W-30 and all other viscosity grades not listed above			
FEI SUM			2.2% min
FEI 2			1.0% min after 100 hours aging
ASTM D8226 (Sequence VIF)			
SAE XW-16 viscosity grade			
FEI SUM			3.7% min
FEI 2			1.8% min after 100 hours aging
ASTM D6709 (Sequence VIII)			
Bearing weight loss, mg	26 (max)	26 (max)	26 (max)
ASTM DXXXX (Sequence IX)[d]			
Average number of events	5 (max) [d]	5 (max) [d]	5 (max) [d]

Bench Test and Measured Parameter[a]			
Aged oil low-temperature viscosity			
ASTM D7320, (Sequence IIIGA), aged oil low-temperature viscosity[e]	a) If CCS viscosity measured is less than or equal to maximum CCS viscosity specified for original viscosity grade, run ASTM D4684 (MRV TP-1) at MRV temperature specified in SAE J300 for original viscosity grade. b) If CCS viscosity measured is higher than maximum viscosity specified for original viscosity grade in J300, run ASTM D4684 (MRV TP-1) at 5°C higher temperature (i.e., at MRV temperature specified in SAE J300 for next higher viscosity grade). c) EOT IIIGA sample must show no yield stress in D4684 test and its D4684 viscosity must be below maximum specified in SAE J300 for original viscosity grade or next higher viscosity grade, depending on CCS viscosity grade, as outlined in a) or b) above.		
Or			
ASTM D7528, (ROBO Test), aged oil low-temperature viscosity[e]	d) If CCS viscosity measured is less than or equal to maximum CCS viscosity specified for original viscosity grade, run ASTM D4684 (MRV TP-1) at the MRV temperature specified in SAE J300 for original viscosity grade. e) If CCS viscosity measured is higher than maximum viscosity specified for original viscosity grade in J300, run ASTM D4684 (MRV TP-1) at 5°C higher temperature (i.e., at MRV temperature specified in SAE J300 for next higher viscosity grade). f) EOT ROBO sample must show no yield stress in D4684 test and its D4684 viscosity must be below maximum specified in SAE J300 for original viscosity grade or next higher viscosity grade, depending on CCS viscosity grade, as outlined in a) or b) above.		
ASTM D7320, (Sequence IIIGB) phosphorus retention, % min	NR	NR	79
Or			
ASTM D8111, (Sequence IIIHB) phosphorus retention, % min	NR	NR	81

ASTM D4683, D4741, or D5481, High Temp./High Shear Viscosity @ 150°C, mPa·s, min	2.3	2.6	2.3
ASTM D6557 (Ball Rust Test), avg. gray value, min[b]	100	100	100
ASTM D5800, evaporation loss, 1 hour at 250°C, % max[f]	15	15	15
ASTM D6417, simulated distillation at 371°C, % max	10	10	10
ASTM D6795, EOFT, % flow reduction, max	50	50	50
ASTM D6794, EOWTT, % flow reduction, max			
with 0.6% H_2O	50	50	50
with 1.0% H_2O	50	50	50
with 2.0% H_2O	50	50	50
with 3.0% H_2O	50	50	50
ASTM D4951 or D5185, phosphorus % mass, max[g]	0.08[g]	NR	0.08[h]
ASTM D4951 or D5185, phosphorus % mass, min[g]	0.06[h]	0.06[h]	0.06[h]
ASTM D4951, D5185, or D2622, sulfur % mass, max[g]			
SAE 0W-16, 5W-16, 0W-20, 0W-30, 5W-20, and 5W-30	0.5[g]	NR	0.5[g]
SAE 10W-30	0.6[g]	NR	0.6[g]
All other viscosity grades	NR	NR	0.6[g]
ASTM D892 (Option A), foaming tendency			
quence I, mL, max, tendency/stability	10/0[i]	10/0[j]	10/0[i]
quence II, mL, max, tendency/stability	50/0[i]	50/0[j]	50/0[i]
quence III, mL, max, tendency/stability	10/0[i]	10/0[j]	10/0[i]
D6082 (Option A), high-temperature foaming mL, max, tendency/stability[i]	100/0	100/0	100/0
ASTM D6922, homogeneity and miscibility	k	k	k
ASTM D6709, (Sequence VIII) shear stability	l	l	l
ASTM D7097, TEOST MHT, high-temperature deposits, deposit wt, mg, max[g]	35	45	35
ASTM D5133, gelation index, max[b]	12[m]	NR	12[m]
ASTM D6335, TEOST 33C, high-temperature deposits, total deposit weight, mg, max			
SAE XW-16	NR	NR	NR
SAE 0W-20	NR	NR	NR
All other viscosity grades	NR	NR	30
ASTM D7563, emulsion retention	NR	NR	no water separation
ASTM D7216 Annex A2, elastomer compatibility	Table X7.1	Table X7.1	Table X7.1

Note: All oils must meet the requirements of the most recent edition of SAE J300; NR = Not required.

[a]Tests are per ASTM requirements.

[b]If CI-4, CJ-4, CK-4 and/or FA-4 categories precede the "S" category and there is no API Certification Mark, the Sequence VG (ASTM D6593) or Sequence VH (ASTM D8256-19), Ball Rust (ASTM D6557), and Gelation Index (ASTM D5133) tests are not required.

[c]Viscosity grades are limited to 0W, 5W and 10W multigrade oils.

[d]Required only for oils claiming to meet API SN with SN PLUS or API SN with SN PLUS and Resource Conserving.

[e]Not required for monograde and 15W, 20W, and 25W multigrade oils.

[f]Calculated conversions specified in ASTM D5800 are allowed.

[g]For all viscosity grades: If CH-4, CI-4 and/or CJ-4 categories precede the "S" category and there is no API Certification Mark, the "S" category limits for phosphorus, sulfur, and the TEOST MHT do not apply. However, the CJ-4 limits for phosphorus and sulfur do apply for CJ-4 oils. This footnote

cannot be applied if CK-4 or FA-4 is also claimed. Note that these “C” category oils have been formulated primarily for diesel engines and may not provide all of the performance requirements consistent with vehicle manufacturers' recommendations for gasoline-fueled engines.
[h]This is a non-critical specification as described in ASTM D3244.
[i]After 1-minute settling period.
[j]After 10-minute settling period.
[k]Shall remain homogenous and, when mixed with ASTM reference oils, shall remain miscible.
[l]Ten-hour stripped kinematic viscosity must remain in original SAE viscosity grade.
[m]To be evaluated from –5˚C to temperature at which 40,000 cP is attained or –40˚C, or 2 Celsius degrees below the appropriate MRV TP-1 temperature (defined by SAE J300), whichever occurs first.