AOAP eBallot - Accept ILSAC Specification GF-7A (Rev8) and GF-7B (Rev9) with target First License Date of March 31, 2025.

The AOAP met on February 14, 2024, to review ILSAC Draft Specification GF-7A (Rev7) and GF-7B (Rev8). After the review and amendment of the ILSAC GF-7 specifications with the proposed First License Date of March 31, 2025, a motion was made to **Ballot Acceptance of ILSAC-GF-7A & GF-7B.**

The motion detail is:

Motion	Motion to ballot acceptance of ILSAC Draft Specification GF-7A (Rev 8) and ILSAC GF-7B (Rev 9) with target First License Date of March 31, 2025. GF-7A to Include: SASH Limit 0.9 Adjustment, Seal ACM-1 ASTM D412 Tensile Strength -40, 40, Wording on Gelation Test to "If Available at licensing", Seq. IIIH WPD=4.6 GF-7B to include: SASH Limit 0.9 Adjustment, Wording on Gelation Test to "If Available at licensing"
Motion by:	Darryl Purificati/HF Sinclair
Seconded by:	Kyle Kress/Phillips 66

The Motion passed on an AOAP roll call vote with the majority Affirmative.

Motion 1	**Auto**	**Oil**
Affirmative	2	11
Negative	0	1
Abstain	3	6
No Response	6	6

AOAP members should Vote on the *"***Ballot Acceptance of ILSAC-GF-7A (Rev8) & GF-7B Rev9)***) with target First License Date of March 31, 2025."* using the eBallot at http://mycommittees.api.org/lubricants/AOAP/default.aspx .

Ballot supporting documentation is given in ballot attachments:

- Attachment 1 November 29, 2023, ILSAC_GF-7A_Rev-8
- Attachment 2 November 29, 2023, ILSAC_GF-7B_Rev-9

This eBallot will close on Thursday March 18, 2024.

All Negative Votes must include comments which:

a) Describes the section to which the negative ballot pertains.

b) Gives substantive reason(s) for negative vote.

c) Proposes wording or action to resolve negative vote.

All Abstentions/Waves to the AOAP Vote must include comments which:

a) Gives substantive reason(s) for Abstain vote.

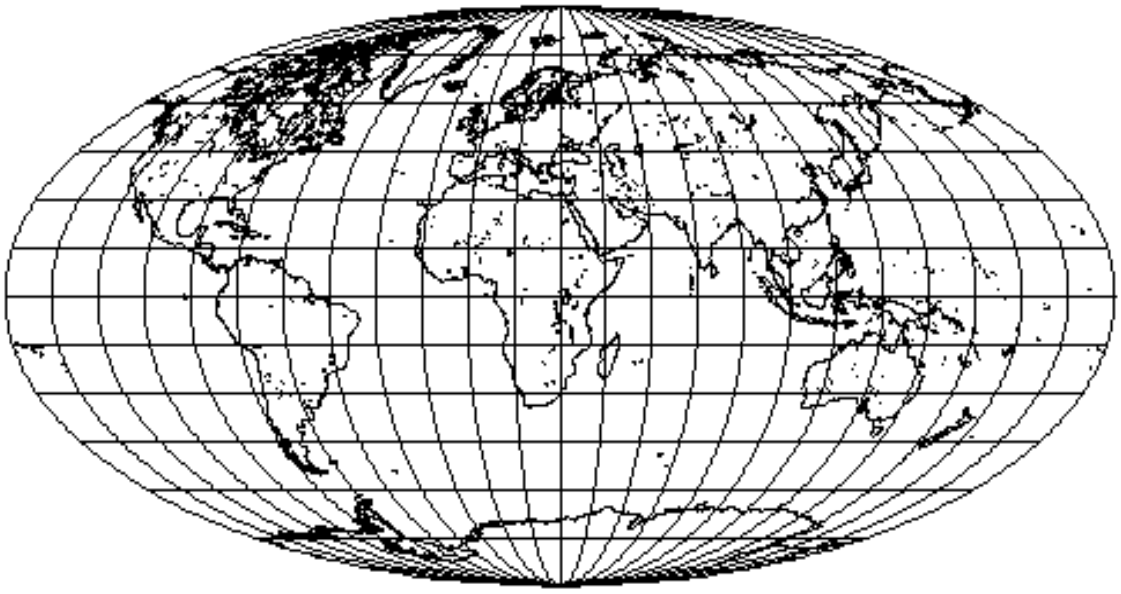
b) Proposes wording or action to resolve Abstain vote.

Any questions, please contact API.

Ballot Attachment 1

These ILSAC recommendations are being developed with input from automobile manufacturers, lubricant producers and lubricant additive companies in a process that is open to public review.

INTERNATIONAL LUBRICANT SPECIFICATION ADVISORY COMMITTEE



ILSAC GF-7A RECOMMENDATIONS FOR PASSENGER CAR ENGINE OILS

February 14, 2024

Rev. 8

ILSAC GF-7A RECOMMENDATIONS

1. FRESH OIL VISCOSITY REQUIREMENTS

1.a SAE J300

Viscosity grades should be limited to **0W-20, 5W-20, 0W-30, 5W-30 and 10W-30** multigrade oils. **New Oil MRV: 40,000cP max**

1.b Gelation Index: ASTM D5133 **N/C** 12 maximum

To be evaluated from –5°C to the 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.

2. ENGINE TEST REQUIREMENTS

2.a Oil Thickening: ASTM Sequence IIIH Test, ASTM D8111

Kinematic Viscosity Increase @ 40°C, %	**N/C** 100 maximum
Average Weighted Piston Deposits, merits	**4.6 min.** (was 4.2 minimum)
Hot Stuck Rings	**N/C** None

2.b Sludge, and Varnish Test: Sequence VH ASTM D8256

Average Engine Sludge, merits	**N/C** 7.6 minimum
Average Rocker Cover Sludge, merits	**N/C** 7.7 minimum
Average Engine Varnish, merits	**N/C** 8.6 minimum
Average Piston Skirt Varnish, merits	**N/C** 7.6 minimum
Oil Screen Sludge, % area	Rate and report
Oil Screen Debris, % area	Rate and report
Hot Stuck Compression Rings	None
Cold Stuck Rings	Rate and report
Oil Ring Clogging, % area	Rate and report

2.c Valvetrain Wear: Sequence IVB ASTM D8350

Average Intake Lifter Volume Loss (8 position average), mm^3	**N/C** 2.7 maximum
End of Test Iron, ppm	**N/C** 400 maximum

2.d Bearing Corrosion: Sequence VIII, ASTM D6709

Bearing Weight Loss, mg	**N/C** 26 maximum

2.e Fuel Efficiency, Sequence VIE ASTM D8114

SAE XW-20 viscosity grade:	
FEI SUM	**4.3 Min.** (was 3.8 min.)
FEI 2	**2.1 Min.** (was 1.8 min.) after 125 hours aging
SAE XW-30 viscosity grade:	
FEI SUM	**3.6 Min.** (was 3.1 min.)
FEI 2	**1.8 Min.** (was 1.5 min.) after 125 hours aging
SAE 10W-30:	
FEI SUM	**3.0 Min.** (was 2.8 min.)
FEI 2	**1.4 Min.** (was 1.3 min.) after 125 hours aging

2.f Low Speed Preignition Prevention (LSPI), Sequence IX ASTM D8291

Average number of events for 4 iterations	**N/C** 5 maximum
Number of events per iteration	**N/C** 8 maximum

2.g **Aged Oil LSPI Prevention, Sequence IX ASTM 8291 Appendix X2 (NEW)**

Average number of events for 4 iterations	**5 maximum**
Number of events per iteration	**8 maximum**

2.h Chain wear: Sequence X ASTM D8279

% increase	**0.080 Max.** (was 0.085 maximum)

3. BENCH TEST REQUIREMENTS

3.a Catalyst Compatibility

Phosphorus Content, ASTM D4951	**N/C** 0.08% (mass) maximum
Phosphorus Volatility, ASTM D8111 (Sequence IIIHB phosphorus retention)	**N/C** 81% minimum
Sulfur Content, ASTM D4951 or D2622	
0W-XX, 5W-XX	**N/C** 0.5% (mass) maximum
10W-30	**N/C** 0.6% (mass) maximum
Sulphated Ash Content, ASTM D874	**0.9% (mass) maximum**

3.b Wear

Phosphorus Content, ASTM D4951	**N/C** 0.06% (mass) minimum

3.c Volatility

Evaporation Loss, ASTM D5800 B/D	**N/C** 15.0% maximum, 1 h at 250°C

3.e High Temperature Deposits, TEOST 33C, ASTM D6335

Total Deposit Weight, mg	**N/C** 30 maximum

Note: No TEOST 33C limit for SAE 0W-20.

3.f Filterability

EOWTT, ASTM D6794	**N/C**
with 0.6% H_2O	50% maximum flow reduction
with 1.0% H_2O	50% maximum flow reduction
with 2.0% H_2O	50% maximum flow reduction
with 3.0% H_2O	50% maximum flow reduction

Test formulation with highest additive (DI/VI) concentration. Read across results to all other base oil/viscosity grade formulations using the same or lower concentration of the identical additive (DI/VI) combination. Each different DI/VI combination must be tested.

EOFT, ASTM D6795	**N/C** 50% maximum flow reduction
Gelation Test, WK86363 (Max)	**Rate & Report % flow reduction If Available at licensing**

3.g Fresh Oil Foaming Characteristics,
ASTM D892 (Option A and excluding paragraph 11) **N/C**

	Tendency	Stability*
Sequence I	10 mL maximum	0 mL maximum
Sequence II	50 mL maximum	0 mL maximum
Sequence III	10 mL maximum	0 mL maximum

*After 1 minute settling period

3.h Fresh Oil High Temperature Foaming Characteristics, **N/C**
ASTM D6082 (Option A)

	Tendency	Stability*
	100 mL maximum	0 mL maximum

*After 1-minute settling period

3.i Aged Oil Low Temperature Viscosity, **N/C**

Aged oil low temperature viscosity must be measured on the final* formulation, this includes base oil and additive combination being licensed, for each viscosity grade by either ROBO or IIIHA

Measure CCS viscosity of the EOT ROBO or IIIHA sample at the CCS temperature corresponding to original viscosity grade.

Aged Oil Low Temperature Viscosity ROBO Test, ASTM D7528 **N/C**

a) If CCS viscosity measured is less than or equal to the maximum CCS viscosity specified for the original viscosity grade, run ASTM D4684 (MRV TP-1) at the MRV temperature specified in SAE J300 for the original viscosity grade.
b) If CCS viscosity measured is higher than the maximum viscosity specified for the 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 the next higher viscosity grade).
c) The EOT ROBO sample must show no yield stress in the D4684 test and its D4684 viscosity must be below the maximum specified in SAE J300 for the original viscosity grade, or the next higher viscosity grade, depending on the CCS viscosity, as outlined in a) or b) above.

or

Aged Oil Low Temperature Viscosity, ASTM Sequence IIIHA Test, ASTM D8111 **N/C**

a) If CCS viscosity measured is less than or equal to the maximum CCS viscosity specified for the original viscosity grade, run ASTM D4684 (MRV TP-1) at the MRV temperature specified in SAE J300 for the original viscosity grade.
b) If CCS viscosity measured is higher than the maximum viscosity specified for the 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 the next higher viscosity grade).
c) The EOT IIIHA sample must show no yield stress in the D4684 test and its D4684 viscosity must be below the maximum specified in SAE J300 for the original viscosity grade, or the next higher viscosity grade, depending on the CCS viscosity, as outlined in a) or b) above.

* Pursuant to existing readacross described in API 1509, Annex F.

3.j Shear Stability, Sequence VIII, ASTM D6709 **N/C**

10-hour stripped KV @ 100°C	
XW-20	Stay in grade
XW-30	Stay in grade

3.k Homogeneity and Miscibility, ASTM D6922 **N/C**

Shall remain homogeneous and, when mixed with TMC reference oils, shall remain miscible.

3.l Engine Rusting, Ball Rust Test, ASTM D6557 **N/C**

Average Gray Value	100 minimum

3.m Emulsion Retention, ASTM D7563 **N/C**

0°C, 24 Hours	No water separation
25°C, 24 Hours	No water separation

3.n **Candidate oil testing for elastomer compatibility** shall be performed using the five Standard Reference Elastomers (SREs) referenced herein and defined in SAE J2643. Candidate oil testing shall be performed according to ASTM D7216 Annex A2, The post-candidate-oil-immersion elastomers shall conform to the specification limits detailed herein.

Elastomer Material (SAE J2643)	Test Procedure	Material Property	Units	Limits
Polyacrylate Rubber (ACM-1)	ASTM D471	Volume	%	-5, 9
	ASTM D2240	Hardness	pts.	-10, 10
	ASTM D412	Tensile Strength	%	-40, 40
Hydrogenated Nitrile Rubber (HNBR-1)	ASTM D471	Volume	%	-5, 10
	ASTM D2240	Hardness	pts.	-10, 5
	ASTM D412	Tensile Strength	%	-20, 15
Silicone Rubber (VMQ-1)	ASTM D471	Volume	%	-5, 40
	ASTM D2240	Hardness	pts.	-30, 10
	ASTM D412	Tensile Strength	%	-50, 5
Fluorocarbon Rubber (FKM-1)	ASTM D471	Volume	%	-2, 3
	ASTM D2240	Hardness	pts.	-6, 6
	ASTM D412	Tensile Strength	%	-65, 10
Ethylene Acrylic Rubber (AEM-1)	ASTM D471	Volume	%	-5, 30
	ASTM D2240	Hardness	pts.	-20, 10
	ASTM D412	Tensile Strength	%	-30, 30
ACM-2	**ASTM D471**	**Volume**	**%**	**Rate & Report (R&R)**
(ACM-2)	**ASTM D2240**	**Hardness**	**pts.**	**R&R**
	ASTM D412	**Tensile Strength**	**%**	**R&R**
AEM-2	**ASTM D471**	**Volume**	**%**	**R&R**
(AEM-2)	**ASTM D2240**	**Hardness**	**pts.**	**R&R**
	ASTM D412	**Tensile Strength**	**%**	**R&R**

AEM-3	ASTM D471	Volume	%	R&R
(AEM-3)	ASTM D2240	Hardness	pts.	R&R
	ASTM D412	Tensile Strength	%	R&R
Fluoroelastomer	ASTM D471	Volume	%	R&R
(FKM-3)	ASTM D2240	Hardness	pts.	R&R
	ASTM D412	Tensile Strength	%	R&R

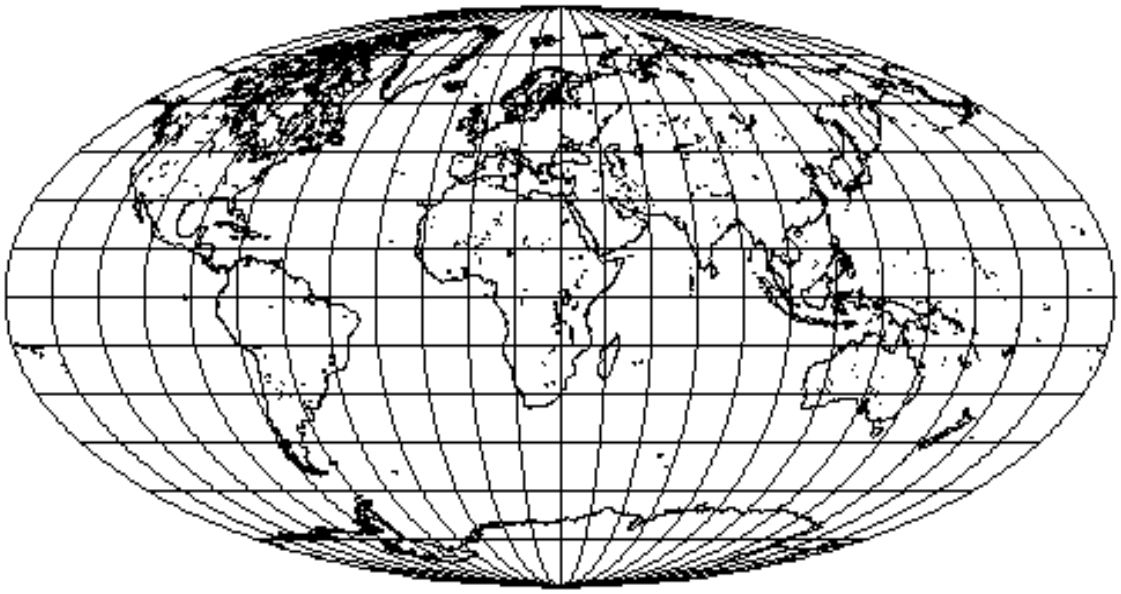
4. APPLICABLE DOCUMENTS

a. SAE Standard, Engine Oil Viscosity Classification—SAE J300, SAE Handbook.
b. SAE Standard, Standard Reference Elastomers (SRE) for Characterizing the Effects on Vulcanized Rubbers, 2023-5—SAE J2643, SAE Handbook.
c. STM Annual Book of Standards, Volume 5, Petroleum Products and Lubricants, current edition.
d. M. Batko and D. F. Florkowski, “Low Temperature Rheological Properties of Aged Crankcase Oils,” SAE Paper 2000-01-2943.
e. M. Batko and D. F. Florkowski, “Lubricant Requirements of an Advanced Designed High Performance, Fuel Efficient Low Emissions V-6 Engine,” SAE Paper 01FL-265

Ballot Attachment 2

These ILSAC recommendations are being developed with input from automobile manufacturers, lubricant producers and lubricant additive companies in a process that is open to public review.

INTERNATIONAL LUBRICANT SPECIFICATION ADVISORY COMMITTEE



ILSAC GF-7B RECOMMENDATIONS FOR PASSENGER CAR ENGINE OILS

February 14, 2024
Rev. 9

ILSAC GF-7B RECOMMENDATIONS

1. FRESH OIL VISCOSITY REQUIREMENTS

1.a SAE J300

Viscosity grades shall be limited to 0W-16.
New Oil MRV: 40,000cP max

Note: Any viscosity grades lower than SAE 16 as defined by HTHS150, i.e., <2.3 mPa-s, would have to be reviewed and approved by AOAP (or its successor group) before being included in the above list of viscosity grades approved for GF-7B

1.b Gelation Index: ASTM D5133 **N/C** 12 maximum

To be evaluated from –5°C to the 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.

2. ENGINE TEST REQUIREMENTS

2.a Oil Thickening: ASTM Sequence IIIH Test, ASTM D8111

Kinematic Viscosity Increase @ 40°C, %	**N/C** 100 maximum
Average Weighted Piston Deposits, merits	~~4.6 Min.~~ **4.2** minimum
Hot Stuck Rings	**N/C** None

2.b Sludge, and Varnish Test: Sequence VH ASTM D8256

Average Engine Sludge, merits	**N/C** 7.6 minimum
Average Rocker Cover Sludge, merits	**N/C** 7.7 minimum
Average Engine Varnish, merits	**N/C** 8.6 minimum
Average Piston Skirt Varnish, merits	**N/C** 7.6 minimum
Oil Screen Sludge, % area	Rate and report
Oil Screen Debris, % area	Rate and report
Hot Stuck Compression Rings	None
Cold Stuck Rings	Rate and report
Oil Ring Clogging, % area	Rate and report

2.c Valvetrain Wear: Sequence IVB ASTM D8350

Average Intake Lifter Volume Loss (8 position average), mm^3	**N/C** 2.7 maximum
End of Test Iron, ppm	**N/C** 400 maximum

2.d Bearing Corrosion: Sequence VIII, ASTM D6709

Bearing Weight Loss, mg **N/R**

2.e Fuel Efficiency, Sequence VIF ASTM D8226

SAE 0W-16 viscosity grade:

FEI SUM	**4.3 Min.** (was 4.1 min.)
FEI 2	**2.1 Min.** (was 1.9 min.) after 125 hours aging

2.f Low Speed Preignition Prevention (LSPI), Sequence IX, ASTM D8291

Average number of events for 4 iterations	**N/C** 5 maximum
Number of events per iteration	**N/C** 8 maximum

2.g **Aged Oil LSPI Prevention, Sequence IX, ASTM 8291 Appendix X2 (NEW)**

Average number of events for 4 iterations	**5 maximum**
Number of events per iteration	**8 maximum**

2.h Chain wear: Sequence X, ASTM D8279

% increase	**0.080 Max.** (was 0.085 maximum)

3. BENCH TEST REQUIREMENTS

3.a Catalyst Compatibility

Phosphorus Content, ASTM D4951	**N/C** 0.08% (mass) maximum
Phosphorus Volatility, ASTM D8111 (Sequence IIIHB phosphorus retention)	**N/C** 81% minimum
Sulfur Content, ASTM D4951 or D2622	**N/C** 0.5% (mass) maximum
Sulphated Ash Content, ASTM D874	**New 0.9% (mass) maximum**

3.b Wear

Phosphorus Content, ASTM D4951	**N/C** 0.06% (mass) minimum

3.c Volatility

Evaporation Loss, ASTM D5800 B/D	**N/C** 15.0% maximum, 1 h at 250°C

3.e High Temperature Deposits, TEOST 33C, ASTM D6335

Total Deposit Weight, mg	**N/R**

3.f Filterability

EOWTT, ASTM D6794	**N/C**
with 0.6% H_2O	50% maximum flow reduction
with 1.0% H_2O	50% maximum flow reduction
with 2.0% H_2O	50% maximum flow reduction
with 3.0% H_2O	50% maximum flow reduction

Test formulation with highest additive (DI/VI) concentration. Read across results to all other base oil/viscosity grade formulations using the same or lower concentration of the identical additive (DI/VI) combination. Each different DI/VI combination must be tested.

EOFT, ASTM D6795	**N/C** 50% maximum flow reduction
Gelation Test, WK86363 (Max)	**Rate & Report % flow reduction If Available at licensing**

3.g Fresh Oil Foaming Characteristics,
ASTM D892 (Option A and excluding paragraph 11) **N/C**

	Tendency	Stability*
Sequence I	10 mL maximum	0 mL maximum
Sequence II	50 mL maximum	0 mL maximum
Sequence III	10 mL maximum	0 mL maximum

*After 1 minute settling period

3.h Fresh Oil High Temperature Foaming Characteristics, **N/C**
ASTM D6082 (Option A)

Tendency	Stability*
100 mL maximum	0 mL maximum

*After 1-minute settling period

3.i Aged Oil Low Temperature Viscosity, **N/C**

Aged oil low temperature viscosity must be measured on the final formulation, this includes base oil and additive combination being licensed, for each viscosity grade by either ROBO or IIIHA

Measure CCS viscosity of the EOT ROBO or IIIHA sample at the CCS temperature corresponding to original viscosity grade

Aged Oil Low Temperature Viscosity ROBO Test, ASTM D7528 **N/C**

a) If CCS viscosity measured is less than or equal to the maximum CCS viscosity specified for the original viscosity grade, run ASTM D4684 (MRV TP-1) at the MRV temperature specified in SAE J300 for the original viscosity grade.
b) If CCS viscosity measured is higher than the maximum viscosity specified for the 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 the next higher viscosity grade).
c) The EOT ROBO sample must show no yield stress in the D4684 test and its D4684 viscosity must be below the maximum specified in SAE J300 for the original viscosity grade, or the next higher viscosity grade, depending on the CCS viscosity, as outlined in a) or b) above.

or

Aged Oil Low Temperature Viscosity, ASTM Sequence IIIHA Test, ASTM D8111 **N/C**

a) If CCS viscosity measured is less than or equal to the maximum CCS viscosity specified for the original viscosity grade, run ASTM D4684 (MRV TP-1) at the MRV temperature specified in SAE J300 for the original viscosity grade.
b) If CCS viscosity measured is higher than the maximum viscosity specified for the 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 the next higher viscosity grade).
c) The EOT IIIHA sample must show no yield stress in the D4684 test and its D4684 viscosity must be below the maximum specified in SAE J300 for the original viscosity grade, or the next higher viscosity grade, depending on the CCS viscosity, as outlined in a) or b) above.

3.j Shear Stability, Diesel Injector, ASTM D6278 **N/C**

KV @ 100°C (after 30 passes)
0W-16 Oils 5.8 cSt minimum

3.k Homogeneity and Miscibility, ASTM D6922 **N/C**

Shall remain homogeneous and, when mixed with TMC reference oils, shall remain miscible.

3.l Engine Rusting, Ball Rust Test, ASTM D6557 **N/C**

Average Gray Value	100 minimum

3.m Emulsion Retention, ASTM D7563 **N/C**

0°C, 24 Hours	No water separation
25°C, 24 Hours	No water separation

3.n **Candidate oil testing for elastomer compatibility** shall be performed using the five Standard Reference Elastomers (SREs) referenced herein and defined in SAE J2643. Candidate oil testing shall be performed according to ASTM D7216 Annex A2, The post-candidate-oil-immersion elastomers shall conform to the specification limits detailed herein.

Elastomer Material (SAE J2643)	Test Procedure	Material Property	Units	Limits
Polyacrylate Rubber (ACM-1)	ASTM D471	Volume	%	-5, 9
	ASTM D2240	Hardness	pts.	-10, 10
	ASTM D412	Tensile Strength	%	-40, 40
Hydrogenated Nitrile Rubber (HNBR-1)	ASTM D471	Volume	%	-5, 10
	ASTM D2240	Hardness	pts.	-10, 5
	ASTM D412	Tensile Strength	%	-20, 15
Silicone Rubber (VMQ-1)	ASTM D471	Volume	%	-5, 40
	ASTM D2240	Hardness	pts.	-30, 10
	ASTM D412	Tensile Strength	%	-50, 5
Fluorocarbon Rubber (FKM-1)	ASTM D471	Volume	%	-2, 3
	ASTM D2240	Hardness	pts.	-6, 6
	ASTM D412	Tensile Strength	%	-65, 10
Ethylene Acrylic Rubber (AEM-1)	ASTM D471	Volume	%	-5, 30
	ASTM D2240	Hardness	pts.	-20, 10
	ASTM D412	Tensile Strength	%	-30, 30
ACM-2 (ACM-2)	**ASTM D471**	**Volume**	**%**	**Rate & Report (R&R)**
	ASTM D2240	**Hardness**	**pts.**	**R&R**
	ASTM D412	**Tensile Strength**	**%**	**R&R**
AEM-2 (AEM-2)	**ASTM D471**	**Volume**	**%**	**R&R**
	ASTM D2240	**Hardness**	**pts.**	**R&R**
	ASTM D412	**Tensile Strength**	**%**	**R&R**

AEM-3 (AEM-3)	ASTM D471	Volume	%	R&R
	ASTM D2240	Hardness	pts.	R&R
	ASTM D412	Tensile Strength	%	R&R
Fluoroelastomer (FKM-3)	ASTM D471	Volume	%	R&R
	ASTM D2240	Hardness	pts.	R&R
	ASTM D412	Tensile Strength	%	R&R

4. APPLICABLE DOCUMENTS

a. SAE Standard, Engine Oil Viscosity Classification—SAE J300, SAE Handbook.
b. SAE Standard, Standard Reference Elastomers (SRE) for Characterizing the Effects on Vulcanized Rubbers, 2023-5—SAE J2643, SAE Handbook.
c. STM Annual Book of Standards, Volume 5, Petroleum Products and Lubricants, current edition.
d. M. Batko and D. F. Florkowski, “Low Temperature Rheological Properties of Aged Crankcase Oils,” SAE Paper 2000-01-2943.
e. M. Batko and D. F. Florkowski, “Lubricant Requirements of an Advanced Designed High Performance, Fuel Efficient Low Emissions V-6 Engine,” SAE Paper 01FL-265