Lubricants Group Ballot – Seq. IVA to IVB Equivalency for SM & SN

The API Lubricants Group Standards (LGS) met on August 12, 2026, in Detroit Airport Marriott. The Lubricants Group agenda included a recommendation from CLOG (Category Life Overview Group) regarding Seq. IVA to IVB Equivalency. Brent Calcut, Chair of CLOG drew on Category Continuation Tie-Back Overview from a CLOG Meeting May 8, 2015 to Group Seq. IVA – IVB equivalency limits by API Service Category. CLOG summarized the data for equating the Seq. VIA to the Seq. IVB by API Service Category. For API SM and API SN service categories CLOG recommended an equivalency limit of 90-micron, max.

Lubricants Group listened to and then discussed the CLOG presentation and analysis (Attachment 1). Based on the data presented (Att1, pps4-8) the Lubricants Group accepted Seq. VIA to the Seq. IVB equivalency limit of 90-micron, max for API SM and API SN.

A Motion to formally accept Seq. VIA to the Seq. IVB equivalency was made.

Motion	Motion to LG Ballot Seq. VIA to the Seq. IVB equivalency limit of 90-micron, max for API SM and API SN (ATT01, pp7)
Motion by:	Brent Calcut
Second by:	Robert Stockwell
Lubricants Group Voice Vote	Vote: Approve Votes = All Negative Votes = None Abstain Votes = None Result: **API to Issue Ballot on Seq. IVA to IVB Equivalency.**

Draft changes to API 1509

API 1509 Draft Changes

G.3 API SERVICE CATEGORY SM

Table G-3—Requirements for API Service Category SM

Engine Test Requirements[a]	Viscosity Grade Performance Requirements	
	SAE 0W-20, SAE 5W-20, SAE 0W-30, SAE 5W-30, SAE 10W-30	All Others[b]
ASTM D7320 (Sequence IIIG)		
Kinematic viscosity increase @ 40°C, %	150 (max)	150 (max)
Average weighted piston deposits, merits	3.5 (min)	3.5 (min)
Hot stuck rings	None	None
Average cam plus lifter wear, µm	60 (max)	60 (max)
Or		
ASTM D8111 (Sequence IIIH)		
Kinematic viscosity increase @ 40°C, %	150 (max)	150 (max)
Average weighted piston deposits, merits	3.2 (min)	3.2 (min)
Hot stuck rings	None	None
ASTM D4684 (Sequence IIIGA), ASTM D8111 (Sequence IIIHA), or ASTM D7528 (ROBO)		
Evaluate EOT oil from ASTM Sequence IIIGA, Sequence IIIHA, or ROBO test with ASTM D4684 (MRV TP-1)	ASTM D4684 viscosity of EOT sample must meet requirements of original grade or next higher grade	NR
ASTM D6891 (Sequence IVA)		
Average cam wear (7 position avg.), µm	90 (max)	90 (max)
Or		
ASTM D8350 (Sequence IVB)[c]		
Average intake lifter volume loss (8 position avg), mm³, max	2.7	2.7
End of test iron, ppm, max	400	400

G.4 API SERVICE CATEGORY SN (AND RELATED CLASSIFICATIONS)

Table G-4—Requirements for API Service Category SN, API SN with "Resource Conserving", and API SN with SN PLUS

	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)
Or			
ASTM D8350 (Sequence IVB)[c]			
Average intake lifter volume loss (8 position avg), mm^3, max	2.7	2.7	2.7
End of test iron, ppm, max	400	400	400

Lubricants Group Members should use the API Ballot System to cast their vote and make comments. The Ballot Link is: http://Ballots.api.org. The LG ballots will be counted with comments resolved before the ballot result is determined.

Non-Lubricants Group Members may comment using the API Ballot system. The Ballot Link is: http://Ballots.api.org . All comments will be resolved before the ballot is considered passing.

The Ballot will close on December 8, 2026. All votes and comments must be received by the Ballot Close Date to be considered. Approved Ballot will be effective on the Ballot Authorization Date.

ATTACHMENT 1

CLOG Update to LG

August 12, 2026

CLOG Update to LG

August 12, 2026



Agenda

- Mack T-8E status
- Seq. IVA status and plan
- Seq. VIII status and plan

Mack T8-E Status

- Stats Group recommended matrix
  - Run 3 ISBV108 on RO1005
  - Run 2 T8-E on Tech 1 15W-40 BO1
  - Run 2 T8-E on Tech 1 15W-40 BO2

- Run 7 additional tests with the below matrix

Proposed Matrix	T8-E	ISBV108
RO1005	plenty	1+3
Tech1 15W-40 base oil 1	2	1+0
Tech1 15W-40 base oil 2	2	1+0
	Run T8-E in one lab if possible	

- Funding sought over the past year
  - ASTM agreed to fund 50% of the matrix
  - Request for ACEA funding was denied
  - API is willing to fund 50%, potentially in 2026 depending on other funding needs

- Test remains available

Seq. IVA Status

- At December ASTM,
  - Total of 23 Seq. IVA cams were available (22 candidates + 1 reference)
  - Test expected to become unavailable sometime in 2027

Seq. IVA Limits

Target Test & Parameter(s) for Tie-Back		Categories at Stake that Cannot Be Continued if Tie-Back Not Established									<u>Potential</u> Surrogate Tests for Tie-Back
Test	**Parameters**	**SJ**	**SL**	**SM**	**SN**	**CH-4**	**CI-4**	**CJ-4**	**/EC**	**/RC**	**Test**
IIIF	60hr - %KV40 Increase, Max	☑	-	-	-	☑	-	-	-	-	**IIIH**
	80hr - %KV40 Increase, Max	-	☑	-	-	-	☑	☑	-	-	**IIIH**
	80hr - WPD	☑	☑								**IIIH**
	80hr -Other Rated merits	☑	☑	-	-	-	-	-	-	-	**??**
IIIG	%KV40 Increase, Max	FBO	FBO	☑	☑	FBO	FBO	FBO	-	-	**GMOD or ChOD**
	WPD	FBO	FBO	☑	☑						**GMOD or ChOD**
	Other Rated merits	FBO	FBO	☑	☑	-	-	-	-	-	**??**
VG	Rated merits	☑	☑	☑	☑	-	-	-	-	-	**VH**
IVA	ACW, max	☑	☑	☑	☑	-	-	-	-	-	**IVB**
IIIGB	Phos Retention, % min	-	-	-	-	-	-	-	-	☑	**??**
VIB	Grade specific FE	-	-	-	-	-	-	-	☑	-	**VIE**
VID	Grade specific FE	-	-	-	-	-	-	-	-	☑	**VIE**

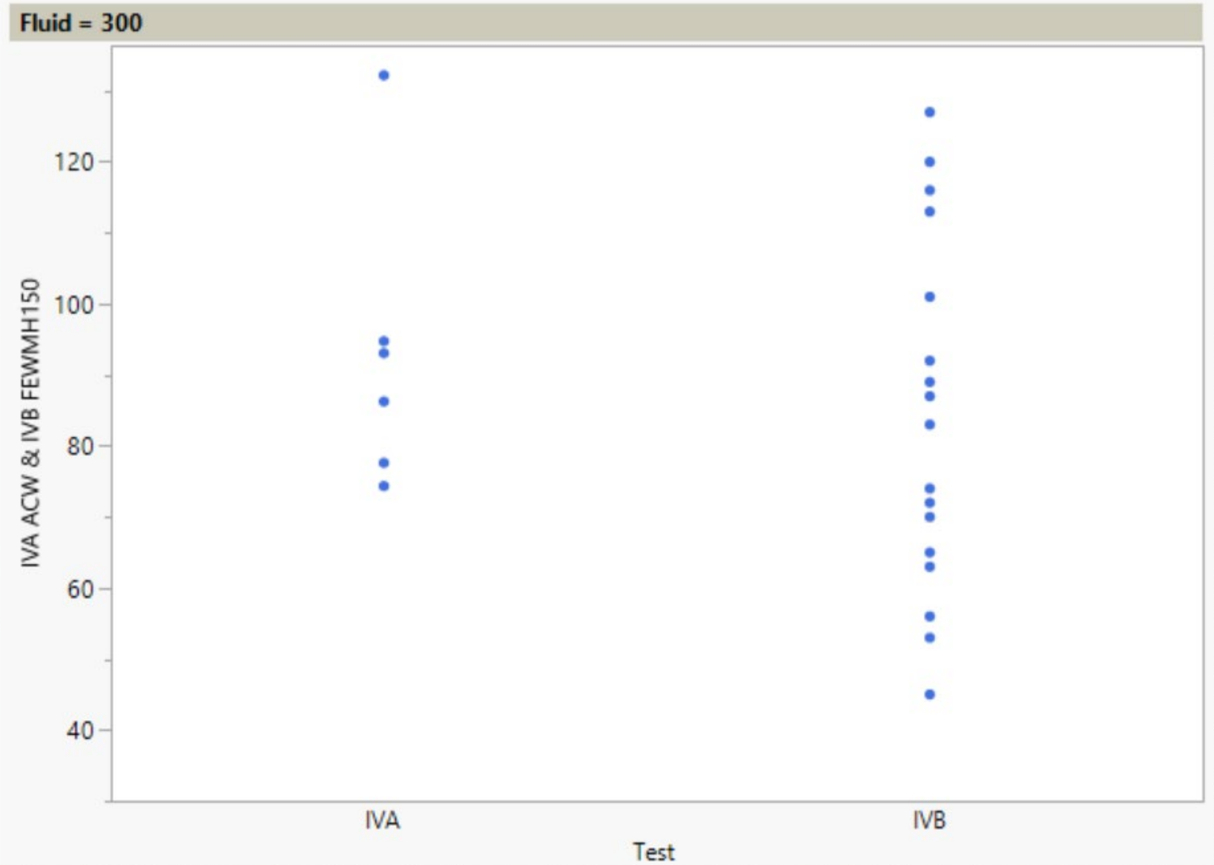
Category Continuation Tie-Back Overview, CLOG Meeting May 8, 2015

120 micron, max

90 micron, max

API SM & SN Recommendation

- We calculate equivalency limits based on reference data
  - RO 300 is a GF-5/SN quality oil and therefore most fitting for all other category limits of 90



- For API SM/SN where the IVA ACW limits is 90:
  - RO 300 passes 3/6 or 50%
  - RO 300 iron levels at 50% passing in Seq. IVB by sample:
    - FE EOT = 223ppm
    - AVLI = 2.06

CLOG recommends API SM and SN equivalency limit in Seq. IVB: AVLI of 2.7 mm^3 maximum and End of Test Iron of 400 ppm maximum

Motion to Ballot Seq. IVA to IVB Equivalency

Motion to ballot the addition of Seq. IVB in API SM and SN as an alternative to Seq. IVA with the following limits:

- AVLI of 2.7 mm^3 maximum
- End of Test Iron of 400 ppm maximum

Motion by: Brent Calcut

Second by: Robert Stockwell

Lubricant Group Member Verbal Vote

- Negatives: None
- Abstain: None
- Affirmative: Unanimous

API SJ & SL Methodology

- We need more data on RO 1006-2 or SJ/SL licensed products
  - CLOG notified ACC PAPTG to collect available data
- Intertek donated two Seq. IVB tests on RO 1006-2
  - Valid, full-length tests with results within the range of other reference oils
  - SwRI agreed to run one Seq. IVB on RO 1006-2
  - If additional data confirmed performance, Seq. IVB could replace Seq. IVA

Reference Oil	AVLI Target (mm^3)	FEEOT Target (ppm)
1012	1.33	126
1011/1011-1	1.57	152
300/300-1	1.94	193
IAR1: 1006-2	1.70	168
IAR2: 1006-2	1.04	86

Oil	IVA (ACW, µm)	IVB (AVLI, mm^3)	IVB (FEEOT, ppm)
300	93.01 (N = 6)	1.94 (target mean)	193 (target mean)
1006-2	102.18 (target mean)	1.70 (N = 1)	168 (N = 1)

Recommend running three more tests on RO 1006-2 (two at each lab) plus any donated data

Seq. VIII

- AOAP has requested CLOG to investigate potential alternatives to Seq. VIII for ILSAC GF-8
  - Options mention include: HTCBT, CBT and D130
  - In February, ILSAC mentioned a preference for steel corrosion over Pb or Cu

- CLOG asked AOAP for clarity on backwards compatibility
  - At the June AOAP, the primary path for GF-8 was to maintain backwards compatibility by keeping the Seq. VIII. Confirmation by ILSAC was still pending.

- Seq. VIII test is not at risk of becoming unavailable
  - No action is needed to maintain existing categories

Next steps

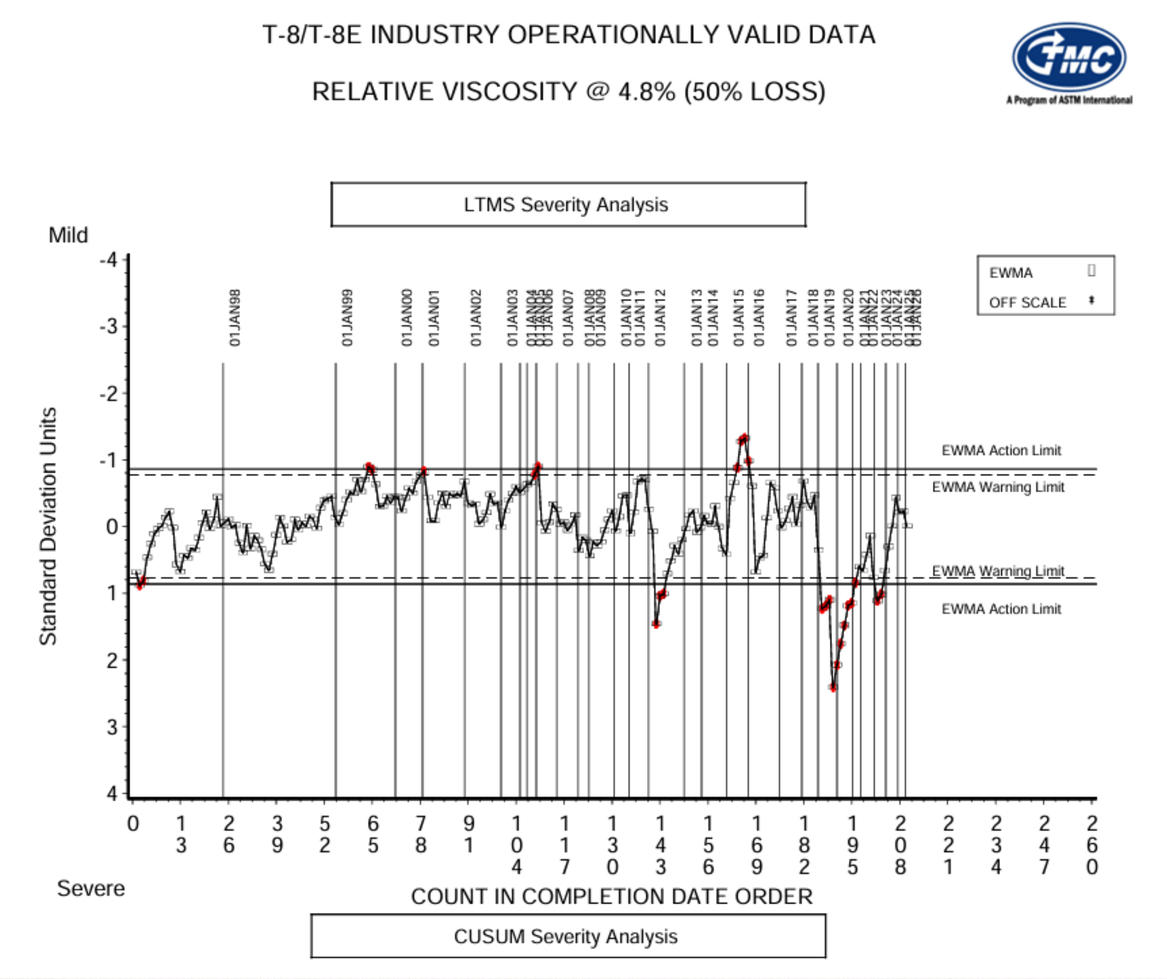
- Mack T8-E: finalize API funding for 50% of matrix

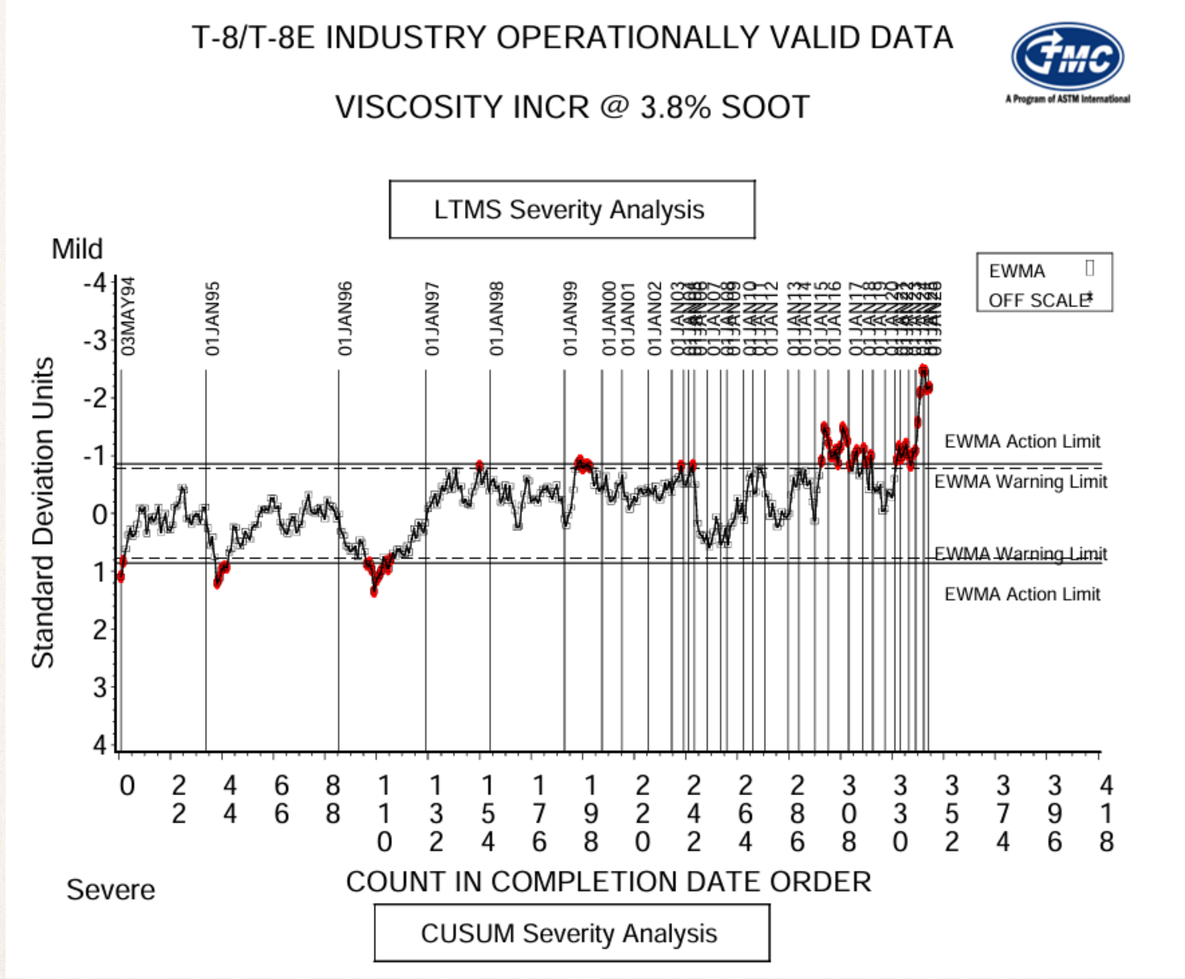
- Seq. IVA:
  - CLOG recommends API LG ballot adding Seq. IVB as an alternative to Seq. IVA in API SM & SN with the same limits as API SP & SQ

- Seq. VIII: no action needed

Appendix

Mack T-8E


T-8/T-8E INDUSTRY OPERATIONALLY VALID DATA
RELATIVE VISCOSITY @ 4.8% (50% LOSS)
A Program of ASTM International
LTMS Severity Analysis
Mild
Severe
Standard Deviation Units
EWMA
OFF SCALE
EWMA Action Limit
EWMA Warning Limit
EWMA Warning Limit
EWMA Action Limit
COUNT IN COMPLETION DATE ORDER
CUSUM Severity Analysis


T-8/T-8E INDUSTRY OPERATIONALLY VALID DATA
VISCOSITY INCR @ 3.8% SOOT
A Program of ASTM International
LTMS Severity Analysis
Mild
Severe
Standard Deviation Units
EWMA
OFF SCALE
EWMA Action Limit
EWMA Warning Limit
EWMA Warning Limit
EWMA Action Limit
COUNT IN COMPLETION DATE ORDER
CUSUM Severity Analysis

Mack T8E/T-11 Current Limits

- Mack T-8E or Mack T-11 is required in all current API ‘C’ categories

Target Test & Parameter(s) for Tie-Back		Categories at Stake if Tie-Back Not Established					
Test	Parameters	CH-4	CI-4	CI-4 PLUS	CJ-4	CK-4/ FA-4	Availability (PC-11)
Ext. T-8E	Relative Viscosity at 4.8 % Soot by TGA, max	2.1[A]	1.8[B]	-	-	-	2028
	Viscosity increase at 3.8 % Soot by TGA, mm2/s, max	11.5	-	-	-	-	
T-11	TGA % Soot at 4.0 mm2/s increase, at 100 °C, min	-	-	-	3.5	3.5	2028
	TGA % Soot at 12.0 mm2/s increase, at 100 °C, min	-	-	6.00	6.0	6.0	
	TGA % Soot at 15.0 mm2/s increase, at 100 °C, min	-	-	-	6.7	6.7	
T-11A	Sooted Oil MRV TP-1, D6896 Viscosity at 180h	-	-	-	25000	25000	2028
	Yield Stress of 180h used oil sample	-	-	-	<35	≤35	
T-12A	Sooted Oil MRV TP-1, D4684 Viscosity at 100h	-	25000	25000	-	-	2028
	Yield Stress of 100h used oil sample	-	<35	<35	-	-	

[A] Calculated using 50% shear loss
[B] Calculated using 100% shear loss
ACEA Sequences require T-8E with relative viscosity at 4.8% of 2.1 max using 50% shear loss