

ASTM Engine Oil Gelation Test (EOGT) WK86363 Update

EOGT Meeting
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Yong-Li McFarland



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EOGT Membership

21 members

Sarah Fitzgerald, Afton Chemical
Robert Stockwell, Chevron Oronite
Quanchang Li, ExxonMobil
Michael Deegan, Ford
Melissa Chu, Infineum
Angela Willis, Infineum
Joe Franklin, Intertek
Karina Gil, Intertek
Yuliza Rocha, Intertek
Michael Johnscher, ISP
Michael Kunselman, KJA Group

Litchi Xie, Lubrizol Additive (Zhuhai) Co., Ltd.
Victoria Fein, Lubrizol
Jason Bowden, OH Technologies Inc
Clarence McCollum, Richful (Xinxiang Richful)
Greg Miiller, Savant Group
Sean Alston, SGS North America
Becky Grinfield, SwRI
Yong-Li McFarland*, SwRI
John Loop, TMC
Jared Cavaliere, Valvoline

*Chair



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New EOGT WK86363, ILS# 1854

- Ford request for a new Engine Oil Gelation Test (EOGT): request to add a new test filterability test to better screen oils for field issues
- Status:
 - Method: 1 draft (V10) uploaded on ASTM Collaboration Area
 - Oils: 11 potential reference oils offered; 17 oils received at TMC
 - Screening Tests and ILS: ILS tests completed
 - Timing: test available in February 2026

Agenda:

- 1. Precision approval
- 2. Oil F reblends
- 3. Method suggestions / revision
- 4. Report form updates



EOGT Report value and Precision

- ILS objectives:

- 1) Determine report value: *Report the volume at 120 s for each of the duplicate runs. The primary result is the average volume at 120 s. Report batch Oil F result (for tests needing TMC referencing).*
- 2) Establish precision (determinability, repeatability, and reproducibility) statement:
 - *Determinability (d)*—*The difference between successive determined values obtained by the same operator in the same laboratory using the same apparatus for a series of operations leading to a single result, would in the long run, in the normal and correct operation of this test method, exceed the values indicated only in one case in twenty:*
 - *The difference between determinations shall be less than 9 mL of its duplicate run. Each determination shall reach 120 seconds (for reference oils only).*
 - *Repeatability (r)*—*The difference between successive test results, obtained by the same operator with the same apparatus under constant operating conditions on identical test material, would in the long run, in the normal and correct operation of the test method, exceed the following value only in one case in twenty:*
 - *Reproducibility (R)*—*The difference between two single and independent results, obtained by different operators working in different laboratories on identical test material, would in the long run, in the normal and correct operation of the test method, exceed the following value only in one case in twenty:*

Repeatability= 15 mL

Reproducibility= 21 ml



Votes

- Motion to approve the determinability, repeatability, and reproducibility for EOGT as listed:
 - *Determinability: The difference between determinations shall be less than 9 mL of its duplicate run. Each determination shall reach 120 seconds (for reference oils only).*
 - *Repeatability= 15 mL*
 - *Reproducibility= 21 ml*

 - *In favor:*
 - *Opposed:*
 - *Waive:*



EOGT Reference oil process

- ILS objectives:
 - 3) Select reference oil(s) for test: *Run reference oils F and M (blinded samples for both). If not acceptable reference run, need to rerun both oils. Acceptance criteria: the difference between the average result for Oil F and Oil M must be greater than 32. Referencing is every 30 days (from start to start). Check oil: passing batch Oil F (only 1 run needed when testing candidates) (internally checked, not submitted to TMC) (criteria of Oil F acceptance range from Stats group). A workshop for the test would be available annually. SP will reassess workshop value after 3 years.*
 - Need to set new test lab criteria for referencing: New lab shall run 2 sequential sets of valid Oil F and M tests. If not calibrated in last 6 months, lab needs to run “new test lab criteria”.
 - *Reference oil info listed in new section to be added to TMC LTMS document.*
- Report forms and Method changes
- Need to build separate EOGT SP.
- To do: need Oil F (2 runs) data from labs 3.1 and 8.1 (TMC to ship out oils to labs) - would allow labs 1, 3, 5, 6, 7, 8 to be calibrated/referenced



Oil F re-blends

SwRI – CMIR	202682 / 375030		202683 / 375031		202684 / 375032		202685 / 375033	
	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2
15s	2	2	2	2	2	2	2	2
30s	4	5	4	4	5	5	5	5
45s	7	8	7	7	7	8	8	7
60s	9	11	9	10	10	10	11	10
75s	11	13	12	12	12	12	13	13
90s	13	16	14	14	15	15	17	15
105s	15	18	16	17	18	18	19	17
120s	18	20	19	19	20	20	22	20
135s	29	23	21	21	23	23	25	23
150s	22	25	23	24	25	26	28	25
165s	25	28	26	26	28	28	30	28
180s	27	30	28	28	31	31	33	30

Intertek Test Key:	202686		202687		202688		202689	
	Run1	Run 2	Run 1	Run 2	Run 1	Run 2	Run 1	Run 2
15	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-
45	-	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-
90	-	-	-	-	-	-	-	-
105	-	-	-	-	-	-	-	-
120	-	-	-	10	-	-	-	-
135	-	-	-	11	-	-	-	-
150	-	-	-	12	-	-	-	-
165	10	10	10	13	-	-	-	-
180	11	11	11	13	10	9	10	10

To check if Intertek can provide numbers less than 10 mL



EOGT method suggestions - Savant

- Heating and mixing. Hotplates must be monitored (overheating). -Addressed
- Cork or spacer? - Amended
- Placement of hands to hold jar (top, middle, fingers only)? Body heat may affect results. -On hold for possible future review
- Tilting and rotating or just circular motion? -Amended
- Energy/heat generated by the homogenizer is not the same for all homogenizers. -Need additional info if wanted to address
- Spout or spoutless cylinder (final drip test)? -Addressed



Report forms – separate Excel forms

ASTM Test Method D XXXX Engine Oil Gelation Test Test Report Cover	
Version	VERSION
Method Version	METHVER
Conducted For TSTSPN1	
TSTSPN2	
LABVALID	V = Valid I = Invalid
TSTOIL	NR = Non-Reference Test Oil RO = Reference Oil Result
Test Number:	TSTNO
Oil Code:	OILCODE
Reference Oil 1:	CMIR1
Reference Oil 2:	CMIR2
Formulation / Stand Code:	FORM
Alternate Code:	ALTCODE1
Date Completed:	DTCOMP
Time Completed:	EOTTIME
In my opinion this test: OPVALID been conducted in a valid manner in accordance with Test Method D XXXX and the appropriate amendments through the information letter sy. The remarks included in this report describe the anomalies associated with this test.	
Submitted By:	SUBLAB Testing Laboratory
	SUBSIGIM Signature
	SUBNAME Typed Name
	SUBTITLE Title
Final Report Cover Sheet	

ASTM D XXXX Report (Engine Oil Gelation Test) Test Data Form 2								
Lab:	LAB	Oil Code:	OILCODE					
Reference Oil 1	REFOIL1	Reference Oil 2	REFOIL2					
Reference Oil 1 ID	RF1OILID	Reference Oil 2 ID	RF2OILID					
Start of Test Date:	SOTDATE	Start of Test Time:	SOTTIME					
End of Test Date:	DTCOMP	End of Test Time:	EOTTIME					
Test Oil Results								
Test Run Number	Date Started	Date Completed	Funnel Stem ID (mm)	Run 1 Volume (120sec)	Run 2 Volume (120sec)	Variance of Test Runs	Average Volume (120sec)	
RUN_R001	STDTR001	DTCPR001	FNLRO01	VL1R001	VL2R001	DIFVR001	VAVGR001	
RUN_R002	STDTR002	DTCPR002	FNLRO02	VL1R002	VL2R002	DIFVR002	VAVGR002	
RUN_R003	STDTR003	DTCPR003	FNLRO03	VL1R003	VL2R003	DIFVR003	VAVGR003	
RUN_R004	STDTR004	DTCPR004	FNLRO04	VL1R004	VL2R004	DIFVR004	VAVGR004	
RUN_R005	STDTR005	DTCPR005	FNLRO05	VL1R005	VL2R005	DIFVR005	VAVGR005	
RUN_R006	STDTR006	DTCPR006	FNLRO06	VL1R006	VL2R006	DIFVR006	VAVGR006	
RUN_R007	STDTR007	DTCPR007	FNLRO07	VL1R007	VL2R007	DIFVR007	VAVGR007	
RUN_R008	STDTR008	DTCPR008	FNLRO08	VL1R008	VL2R008	DIFVR008	VAVGR008	
RUN_R009	STDTR009	DTCPR009	FNLRO09	VL1R009	VL2R009	DIFVR009	VAVGR009	
RUN_R010	STDTR010	DTCPR010	FNLRO10	VL1R010	VL2R010	DIFVR010	VAVGR010	
Reference Oil Results								
Reference Oil Pairs	Reference Oil Code ID	Reference Date Started	Reference Date Completed	Reference Funnel Stem ID (mm)	Reference Run 1 Volume (120sec)	Reference Run 2 Volume (120sec)	Reference Variance of Test Runs	Reference Average Volume (120sec)
REFOIL1	RF1OILID	RF1STDT	R1DTCOMP	R1FUNLID	REF1VOL1	REF1VOL2	REF1VAR	REF1VAVG
REFOIL2	RF2OILID	RF2STDT	R2DTCOMP	R2FUNLID	REF2VOL1	REF2VOL2	REF2VAR	REF2VAVG
N Value (Difference between paired reference oil test results)							RFNVALUE	
Test Data								

ASTM D XXXX Report (Engine Oil Gelation Test) Daily QC Data Form 3										
Lab:	LAB	Oil Code:	OILCODE							
Lab Oil Code:	LABOCODE	QC Formulation / Stand Code:	QCFORM							
Date of Last Calibration:	DTLSTCAL	MC Calibration Expiration Date:	DTLSTXDT							
All Operationally Valid D XXXX QC Daily Check Sample Results Past 14-Days (report for reference tests or										
Daily QC Results										
Daily QC Sample Test Key	Daily QC Oil ID	Daily QC Start Date	Daily QC End Date	Daily QC Operationally Valid?	Daily QC Run1 Volume (120sec)	Daily QC Run2 Volume (120sec)	Daily QC Average Volume (120sec)	Daily QC Determinants Variance	Daily Statist y Valid	
QCKR001	QCCLR001	QCSDR001	QCEDR001	QCOPR001	QCV1R001	QCV2R001	QCVAR001	QCDVR001	QCSVF	
QCKR002	QCCLR002	QCSDR002	QCEDR002	QCOPR002	QCV1R002	QCV2R002	QCVAR002	QCDVR002	QCSVF	
QCKR003	QCCLR003	QCSDR003	QCEDR003	QCOPR003	QCV1R003	QCV2R003	QCVAR003	QCDVR003	QCSVF	
QCKR004	QCCLR004	QCSDR004	QCEDR004	QCOPR004	QCV1R004	QCV2R004	QCVAR004	QCDVR004	QCSVF	
QCKR005	QCCLR005	QCSDR005	QCEDR005	QCOPR005	QCV1R005	QCV2R005	QCVAR005	QCDVR005	QCSVF	
QCKR006	QCCLR006	QCSDR006	QCEDR006	QCOPR006	QCV1R006	QCV2R006	QCVAR006	QCDVR006	QCSVF	
QCKR007	QCCLR007	QCSDR007	QCEDR007	QCOPR007	QCV1R007	QCV2R007	QCVAR007	QCDVR007	QCSVF	
QCKR008	QCCLR008	QCSDR008	QCEDR008	QCOPR008	QCV1R008	QCV2R008	QCVAR008	QCDVR008	QCSVF	
QCKR009	QCCLR009	QCSDR009	QCEDR009	QCOPR009	QCV1R009	QCV2R009	QCVAR009	QCDVR009	QCSVF	
QCKR010	QCCLR010	QCSDR010	QCEDR010	QCOPR010	QCV1R010	QCV2R010	QCVAR010	QCDVR010	QCSVF	
QCKR011	QCCLR011	QCSDR011	QCEDR011	QCOPR011	QCV1R011	QCV2R011	QCVAR011	QCDVR011	QCSVF	
QCKR012	QCCLR012	QCSDR012	QCEDR012	QCOPR012	QCV1R012	QCV2R012	QCVAR012	QCDVR012	QCSVF	
QCKR013	QCCLR013	QCSDR013	QCEDR013	QCOPR013	QCV1R013	QCV2R013	QCVAR013	QCDVR013	QCSVF	
QCKR014	QCCLR014	QCSDR014	QCEDR014	QCOPR014	QCV1R014	QCV2R014	QCVAR014	QCDVR014	QCSVF	
QCKR015	QCCLR015	QCSDR015	QCEDR015	QCOPR015	QCV1R015	QCV2R015	QCVAR015	QCDVR015	QCSVF	
QCKR016	QCCLR016	QCSDR016	QCEDR016	QCOPR016	QCV1R016	QCV2R016	QCVAR016	QCDVR016	QCSVF	
QCKR017	QCCLR017	QCSDR017	QCEDR017	QCOPR017	QCV1R017	QCV2R017	QCVAR017	QCDVR017	QCSVF	
QCKR018	QCCLR018	QCSDR018	QCEDR018	QCOPR018	QCV1R018	QCV2R018	QCVAR018	QCDVR018	QCSVF	
QCKR019	QCCLR019	QCSDR019	QCEDR019	QCOPR019	QCV1R019	QCV2R019	QCVAR019	QCDVR019	QCSVF	
QCKR020	QCCLR020	QCSDR020	QCEDR020	QCOPR020	QCV1R020	QCV2R020	QCVAR020	QCDVR020	QCSVF	
1 - Report "Y" if QC result was Operationally Valid, "N" if result was Operationally Invalid 2 - Report "Y" if QC result is in acceptance range, "M" if MILD of range, "S" if SEVERE of range										
Daily QC Data										

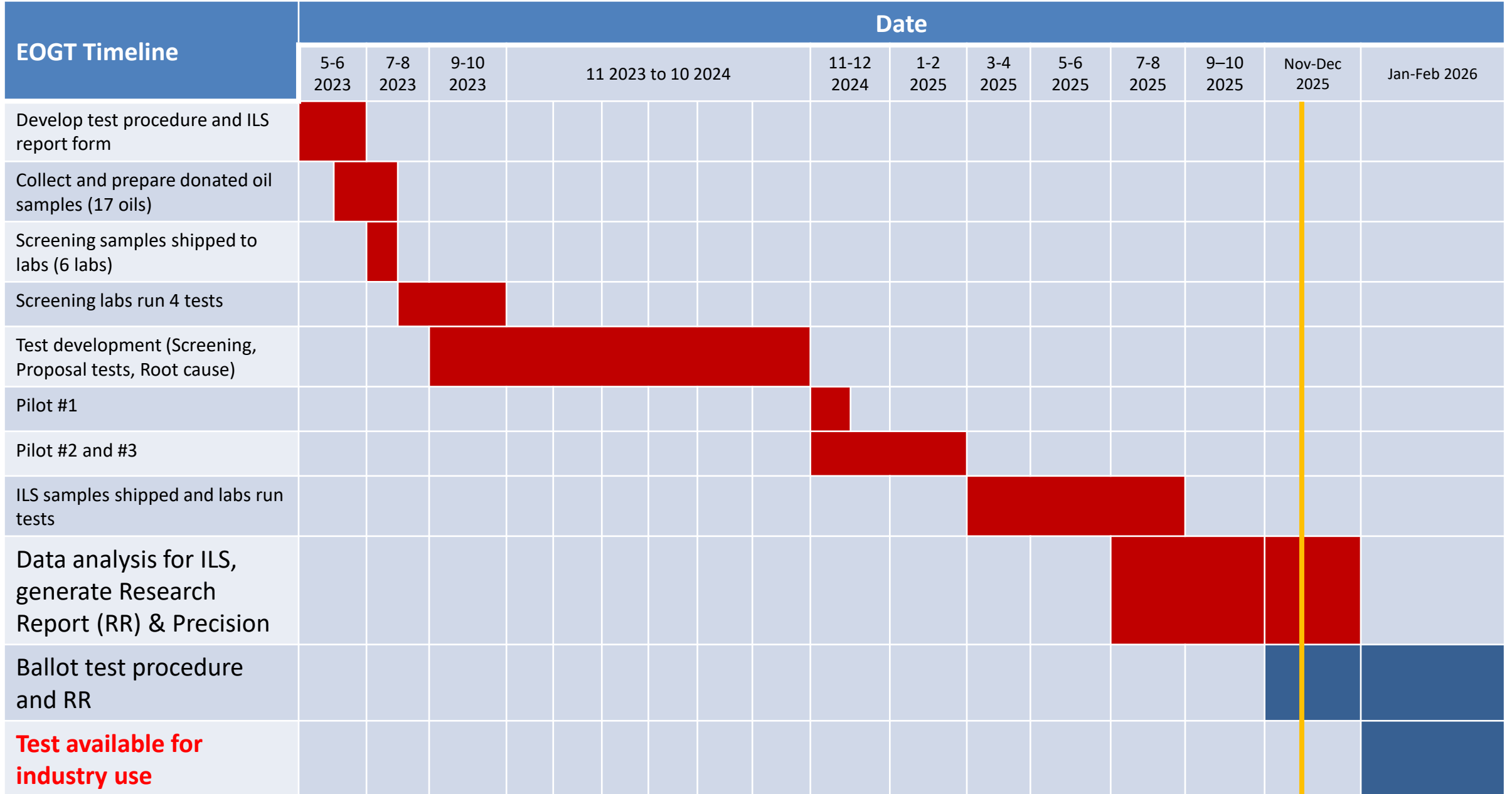
ASTM D XXXX Report (Engine Oil Gelation Test) Comments Form 4			
Lab:	LAB	Oil Code:	OILCODE
Lab Sample Code:	LABOCODE	Test Run Number:	TESTNO
Start of Test Date:	SOTDATE	Start of Test Time:	SOTTIME
End of Test Date:	DTCOMP	End of Test Time:	EOTTIME
Number of Comment Lines:	TOTCOM		
OCOMR001			
OCOMR002			
OCOMR003			
OCOMR004			
OCOMR005			
OCOMR006			
OCOMR007			
OCOMR008			
OCOMR009			
OCOMR010			
OCOMR011			
OCOMR012			
OCOMR013			
OCOMR014			
OCOMR015			
OCOMR016			
Comments			

Report Parameters:

- Oil mass (g)
- Acetic Solution Mass 1, 2
- pH check 1, check 2
- Hot plate name/model, build in thermo probe
- Temperature device
- Time to reach 40 C (mins)
- Glass container Inner diameter (mm)
- Funnel Stem inner diameter (mm)



Timeline – updated Nov 19, 2025



Thank you for your support!

Participants		
Method Development (11)	Oil Donations (9)	Testing Labs (10)
Afton	Afton	Afton
ExxonMobil	Ford	Infineum
Ford	Infineum	Intertek
Infineum	Lubrizol	ISP
Intertek	OH Technologies (donate filters only)	Lubrizol
ISP	Oronite	Richful
Lubrizol	Subaru	Savant
Oronite	TMC (collection, shipping only)	SwRI
Savant	Toyota	TMC (monitoring system only)
SwRI		Valvoline
TMC		

