ASTM Engine Oil Gelation Test (EOGT) WK86363 Update

EOGT Meeting

December 18, 2025

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

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 (V10.1) 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:*

    Repeatability= 15 mL
  - *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:*

    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

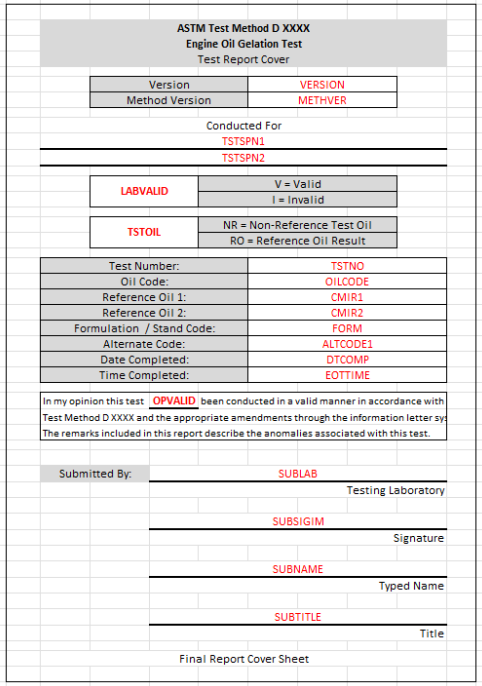
Oil F re-blends

SwRI – CMIR	202682 / 375030		202683 / 375031		202684 / 375032		202685 / 375033	
Time, s	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	
Time, s	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

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

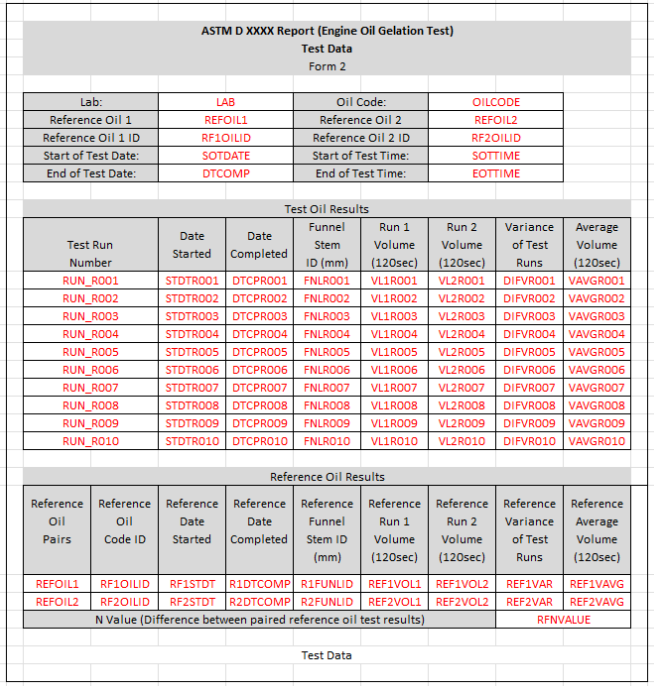
LABVALID	V = Valid I = Invalid
TSTOIL	NR = Non-Reference Test Oil RO = Reference Oil Result

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

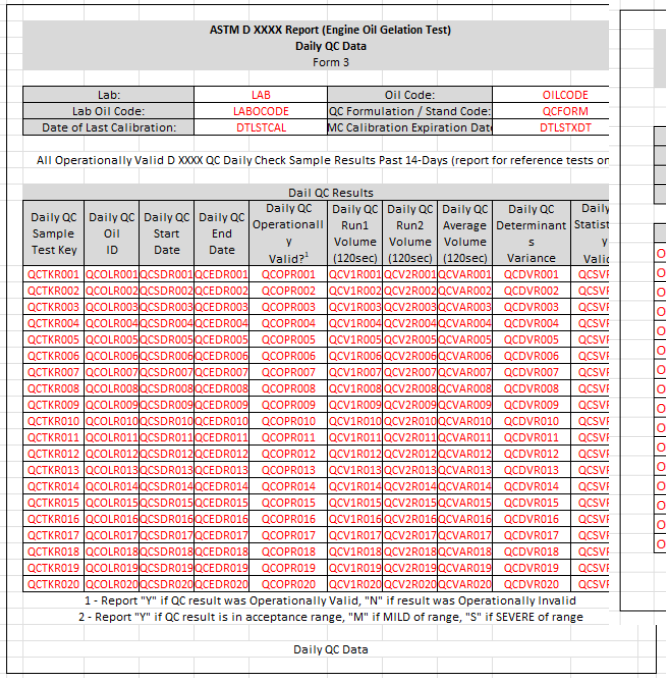
Test Oil Results

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	FNLR001	VL1R001	VL2R001	DIFVR001	VAVGR001
RUN_R002	STDTR002	DTCPR002	FNLR002	VL1R002	VL2R002	DIFVR002	VAVGR002
RUN_R003	STDTR003	DTCPR003	FNLR003	VL1R003	VL2R003	DIFVR003	VAVGR003
RUN_R004	STDTR004	DTCPR004	FNLR004	VL1R004	VL2R004	DIFVR004	VAVGR004
RUN_R005	STDTR005	DTCPR005	FNLR005	VL1R005	VL2R005	DIFVR005	VAVGR005
RUN_R006	STDTR006	DTCPR006	FNLR006	VL1R006	VL2R006	DIFVR006	VAVGR006
RUN_R007	STDTR007	DTCPR007	FNLR007	VL1R007	VL2R007	DIFVR007	VAVGR007
RUN_R008	STDTR008	DTCPR008	FNLR008	VL1R008	VL2R008	DIFVR008	VAVGR008
RUN_R009	STDTR009	DTCPR009	FNLR009	VL1R009	VL2R009	DIFVR009	VAVGR009
RUN_R010	STDTR010	DTCPR010	FNLR010	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	REF1AVG
REFOIL2	RF2OILID	RF2STDT	R2DTCOMP	R2FUNLID	REF2VOL1	REF2VOL2	REF2VAR	REF2AVG
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 Dat	DTLSTXDT

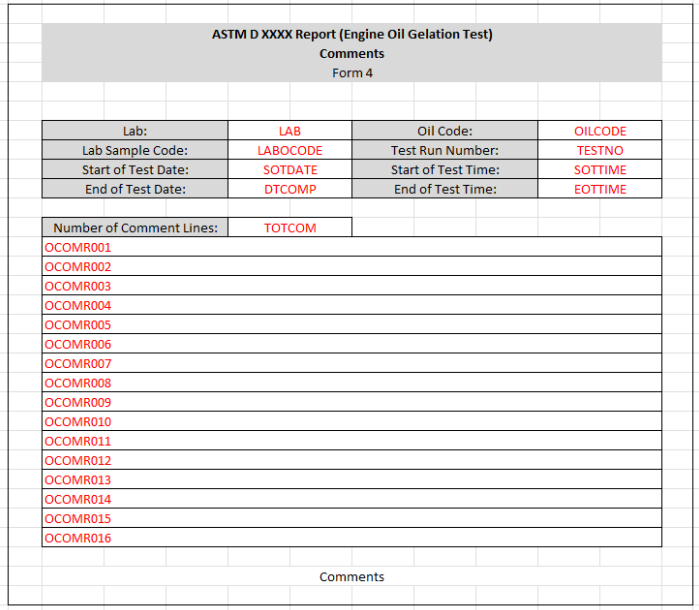
All Operationally Valid D XXXX QC Daily Check Sample Results Past 14-Days (report for reference tests or

Dail QC Results

Daily QC Sample Test Key	Daily QC Oil ID	Daily QC Start Date	Daily QC End Date	Daily QC Operationall y Valid?[1]	Daily QC Run1 Volume (120sec)	Daily QC Run2 Volume (120sec)	Daily QC Average Volume (120sec)	Daily QC Determinant s Variance	Daily Statist y Valic
QCTKR001	QCOLR001	QCSDR001	QCEDR001	QCOPR001	QCV1R001	QCV2R001	QCVAR001	QCDVR001	QCSVF
QCTKR002	QCOLR002	QCSDR002	QCEDR002	QCOPR002	QCV1R002	QCV2R002	QCVAR002	QCDVR002	QCSVF
QCTKR003	QCOLR003	QCSDR003	QCEDR003	QCOPR003	QCV1R003	QCV2R003	QCVAR003	QCDVR003	QCSVF
QCTKR004	QCOLR004	QCSDR004	QCEDR004	QCOPR004	QCV1R004	QCV2R004	QCVAR004	QCDVR004	QCSVF
QCTKR005	QCOLR005	QCSDR005	QCEDR005	QCOPR005	QCV1R005	QCV2R005	QCVAR005	QCDVR005	QCSVF
QCTKR006	QCOLR006	QCSDR006	QCEDR006	QCOPR006	QCV1R006	QCV2R006	QCVAR006	QCDVR006	QCSVF
QCTKR007	QCOLR007	QCSDR007	QCEDR007	QCOPR007	QCV1R007	QCV2R007	QCVAR007	QCDVR007	QCSVF
QCTKR008	QCOLR008	QCSDR008	QCEDR008	QCOPR008	QCV1R008	QCV2R008	QCVAR008	QCDVR008	QCSVF
QCTKR009	QCOLR009	QCSDR009	QCEDR009	QCOPR009	QCV1R009	QCV2R009	QCVAR009	QCDVR009	QCSVF
QCTKR010	QCOLR010	QCSDR010	QCEDR010	QCOPR010	QCV1R010	QCV2R010	QCVAR010	QCDVR010	QCSVF
QCTKR011	QCOLR011	QCSDR011	QCEDR011	QCOPR011	QCV1R011	QCV2R011	QCVAR011	QCDVR011	QCSVF
QCTKR012	QCOLR012	QCSDR012	QCEDR012	QCOPR012	QCV1R012	QCV2R012	QCVAR012	QCDVR012	QCSVF
QCTKR013	QCOLR013	QCSDR013	QCEDR013	QCOPR013	QCV1R013	QCV2R013	QCVAR013	QCDVR013	QCSVF
QCTKR014	QCOLR014	QCSDR014	QCEDR014	QCOPR014	QCV1R014	QCV2R014	QCVAR014	QCDVR014	QCSVF
QCTKR015	QCOLR015	QCSDR015	QCEDR015	QCOPR015	QCV1R015	QCV2R015	QCVAR015	QCDVR015	QCSVF
QCTKR016	QCOLR016	QCSDR016	QCEDR016	QCOPR016	QCV1R016	QCV2R016	QCVAR016	QCDVR016	QCSVF
QCTKR017	QCOLR017	QCSDR017	QCEDR017	QCOPR017	QCV1R017	QCV2R017	QCVAR017	QCDVR017	QCSVF
QCTKR018	QCOLR018	QCSDR018	QCEDR018	QCOPR018	QCV1R018	QCV2R018	QCVAR018	QCDVR018	QCSVF
QCTKR019	QCOLR019	QCSDR019	QCEDR019	QCOPR019	QCV1R019	QCV2R019	QCVAR019	QCDVR019	QCSVF
QCTKR020	QCOLR020	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

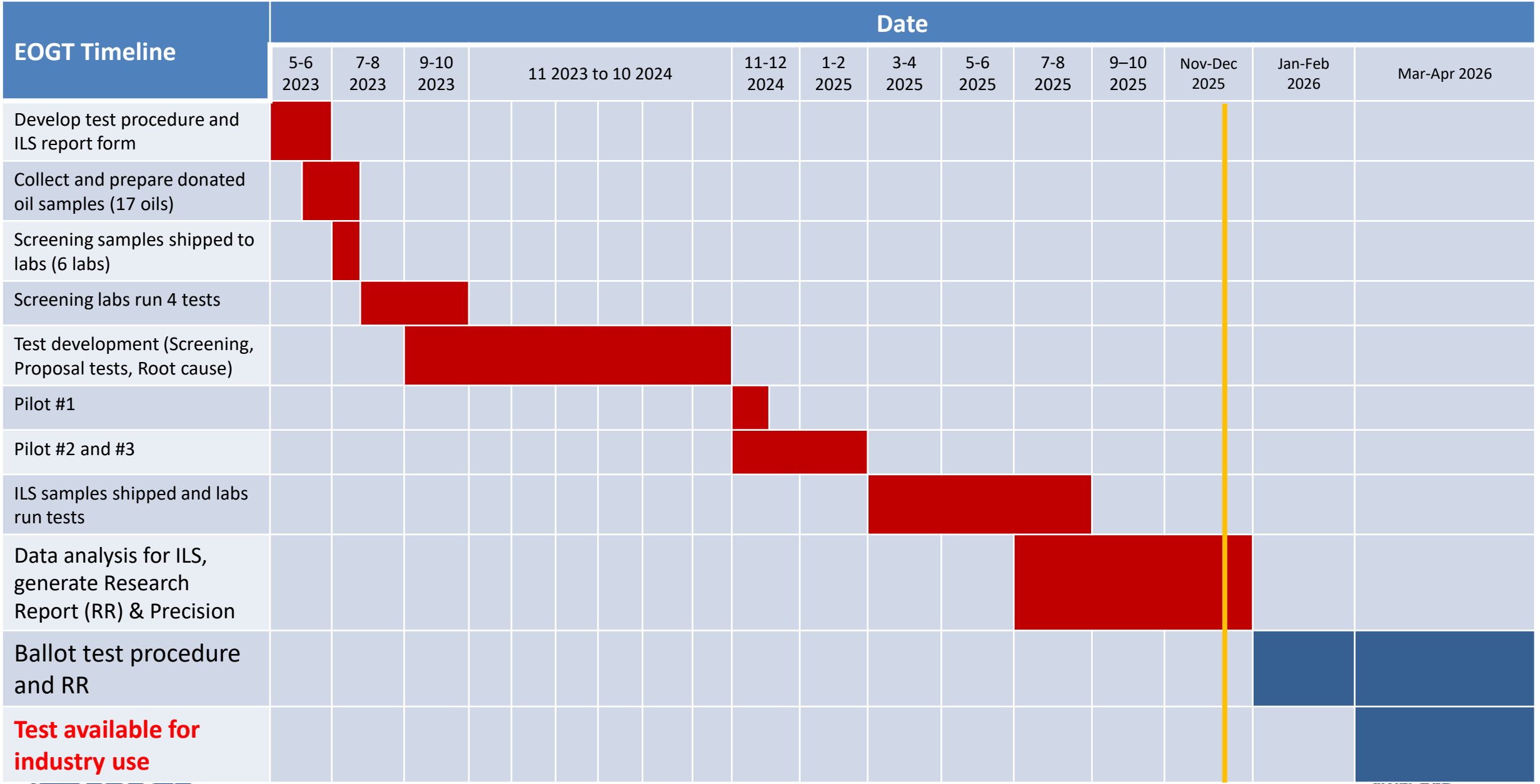
Report Parameters:

-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)

LTMS Draft 1

- See Document

Timeline – updated Dec 19, 2025



Action Items and Next Meeting

- John to update data dictionary, TMC report forms, and EOGT LTMS
- Statisticians to review ILS data to provide acceptance criteria for 1 run Oil F, updated precision results, and check if reblend data is acceptable
- All: review method V10.2 and bring up any items to change
- Stats group: send statistics used to generate precision to Yongli so it can be sent to ASTM ILS team for Research Report.
- Stats group: Please review the existing ILS data for time to reach 40C to make any comments on what range of time is currently seen in data.
- All: send Yong-Li names for EOGT SP chair

- Next meeting: group to vote on motion for precision, referencing decisions, and method to go to ASTM concurrent ballot.

- Next Meeting: Friday Jan 9 at 9am CST for 1.5 hr

Thank you for your support!

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