

ASTM New Engine Oil Gelation Test (EOGT) WK86363 Update

EOFT and EOWTT Surveillance Panel Meeting
September 11, 2023

Yong-Li McFarland, Chair



ADVANCED SCIENCE. APPLIED TECHNOLOGY.

ASTM Antitrust and Recording Policy

ASTM International is a not-for-profit organization and developer of voluntary consensus standards. ASTM's leadership in international standards development is driven by the contributions of its members: more than 30,000 technical experts and business professionals representing 135 countries.

The purpose of antitrust laws is to preserve economic competition in the marketplace by prohibiting, among other things, unreasonable restraints of trade. In ASTM activities, it is important to recognize that participants often represent competitive interests. Antitrust laws require that all competition be open and unrestricted.

It is ASTM's policy, and the policy of each of its committees and subcommittees, to conduct all business and activity in full compliance with international, federal and state antitrust and competition laws. The ASTM Board of Directors has adopted an antitrust policy which is found in Section 19 of ASTM Regulations Governing Technical Committees. All members need to be aware of and compliant with this policy. The Regulations are accessible on the ASTM website <http://www.astm.org/COMMIT/Regs.pdf>.

Electronic recording of ASTM meetings is prohibited.



EOFT and EOWTT Surveillance Panel Membership

20 members

Beth Schwab, Afton Chemical

Michael Kunselman, Center for Quality Assurance

Robert Stockwell, Chevron Oronite

Dennis Gaal, Exxonmobil

Michael Deegan, Ford

Ron Shah, Infineum

Joe Franklin, Intertek

Karina Gil, Intertek

Michael Johnscher, ISP

Litchi Xie, Lubrizol Additive (Zhuhai) Co., Ltd.

Victoria Fein, Lubrizol

Jason Bowden, OH Technologies Inc

Greg Miiller, Savant Group

Maggie Smerdon, Savant Labs

Sean Alston, SGS North America

Jared Cavaliere, SwRI

Becky Grinfield, SwRI

Yong-Li McFarland*, SwRI

John Loop, TMC

Amy Ross, Valvoline

*Chair



ADVANCED SCIENCE. APPLIED TECHNOLOGY.

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
- Current status
 - Method: 2 drafts (large volume (600g) and small volume (200 g)) uploaded on ASTM Collaboration Area, email Jared with procedure questions
 - Oils: **11** potential reference oils offered; 17 oils received at TMC
 - Screening Tests, Pilot Study, and ILS: Waiting on 1 lab Screening Test results
 - Timing: Estimate Screening Tests run in August, Pilot Study tests run by November, ILS tests to be run by March, and final method ballot in May or June 2024



Oil Matrix

Participants	Potential Reference Oils Offered	Oil Sample Received at TMC	Comments
Ford	2 oils (low and high known performance oils) - eligible to be reference oils	2 oil samples received	
Toyota	2 oils - not eligible to be reference oil	2 oil samples received	Offer 2 field samples for later testing; Awaiting some Physical and Chemical data
Afton	4 oils– eligible to be reference oils	4 oil samples received	
Lubrizol	4 oils – eligible to be reference oils	4 oil samples received	
Infineum	1 oil – eligible to be reference oil	1 oil sample received	
Oronite	3 oils –not eligible to be reference oils	3 oil samples received	Awaiting Physical and Chemical data
Subaru	1 oil – not eligible to be reference oil	1 oil sample received	Offer 1 field sample for later testing
Total Oils	<u>11 potential reference oils confirmed</u>	<u>17 oils received</u>	

John Loop to manage Sample Information



Testing Status – updated Sept 8

[EOGT report form Rev4.5](#)

Test Phase	Description	Status	Comments
1. Screening Tests	-4 tests; 2 oils: low performance oil in duplicate, high performance oil in duplicate; 6 labs -Run LV method -Intent: check labs can run test as set up	Samples arrived at labs -SwRI: completed data sent -Intertek: completed data sent -Savant: completed data sent -Afton: completed data sent -ISP: completed data sent -Valvoline: complete tests by mid Sept, send data by late Sept	Run SOT & 14 day EOT only. -Will move forward without Valvoline data -REVIEW initial data
2. Pilot Study	-? Tests; ? Oils; 4 labs -Run SV and LV methods -Intent: determine samples, method, and intervals for procedure and ILS	Waiting to determine samples	
3. Interlaboratory Study (ILS)	-? Tests; ? Oils; 6 labs -Run _ method -Intent: generate repeatability and reproducibility data on samples, determine at least 2 reference oils	Waiting to determine samples	

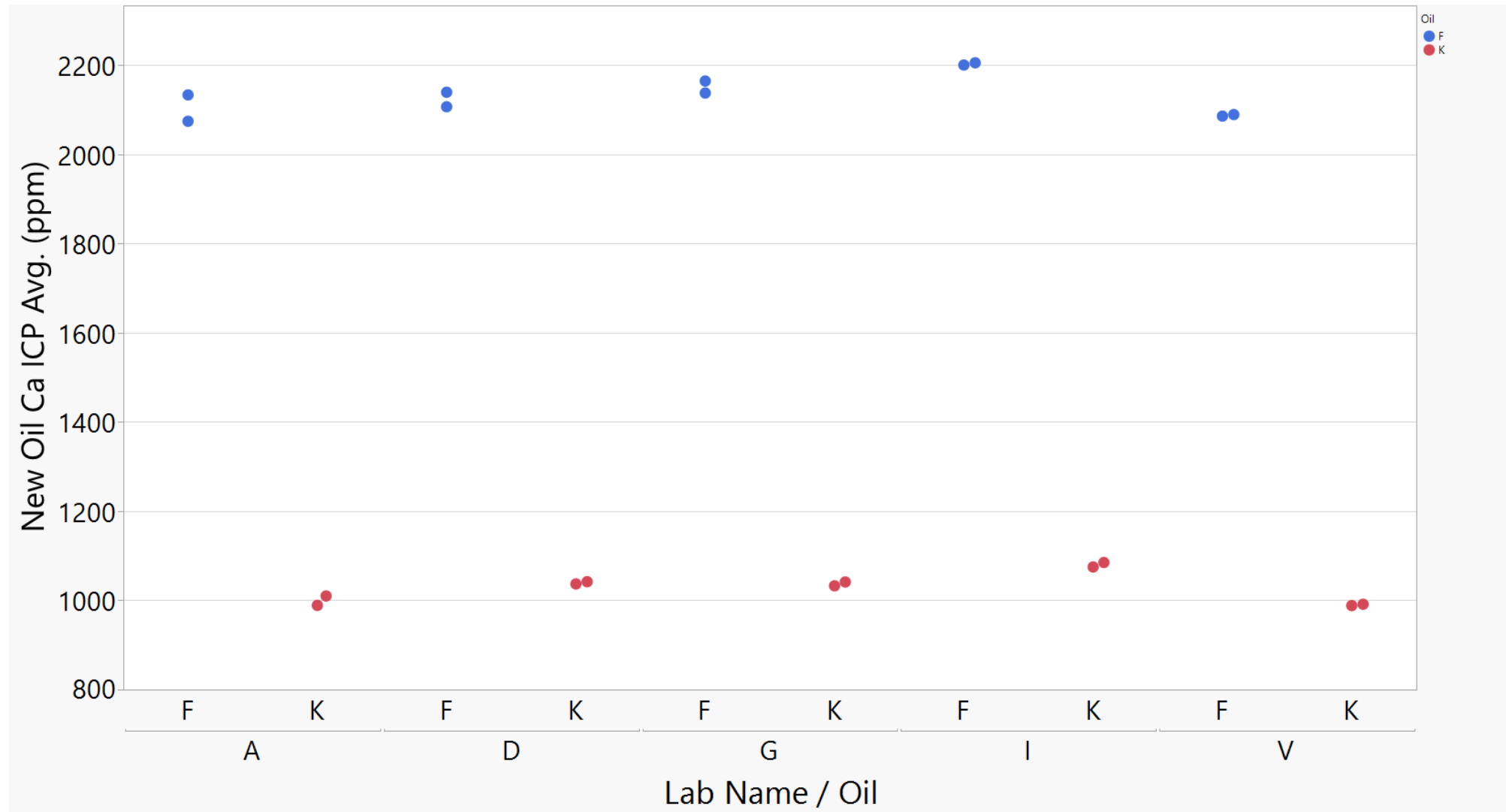
Screening Data Plots

09/11/2023



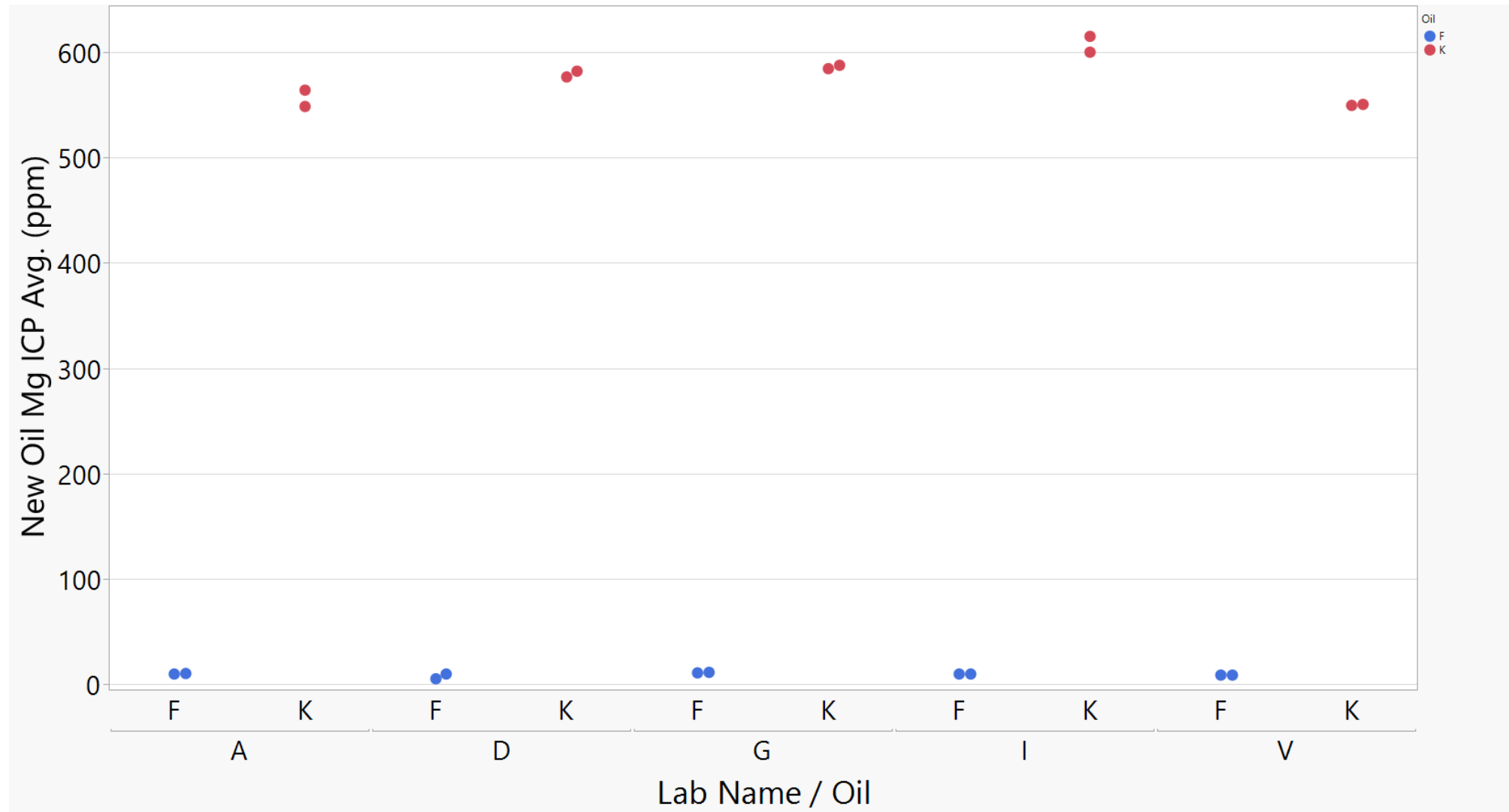
ADVANCED SCIENCE. APPLIED TECHNOLOGY.

New Oil Ca Avg. by Lab and Oil



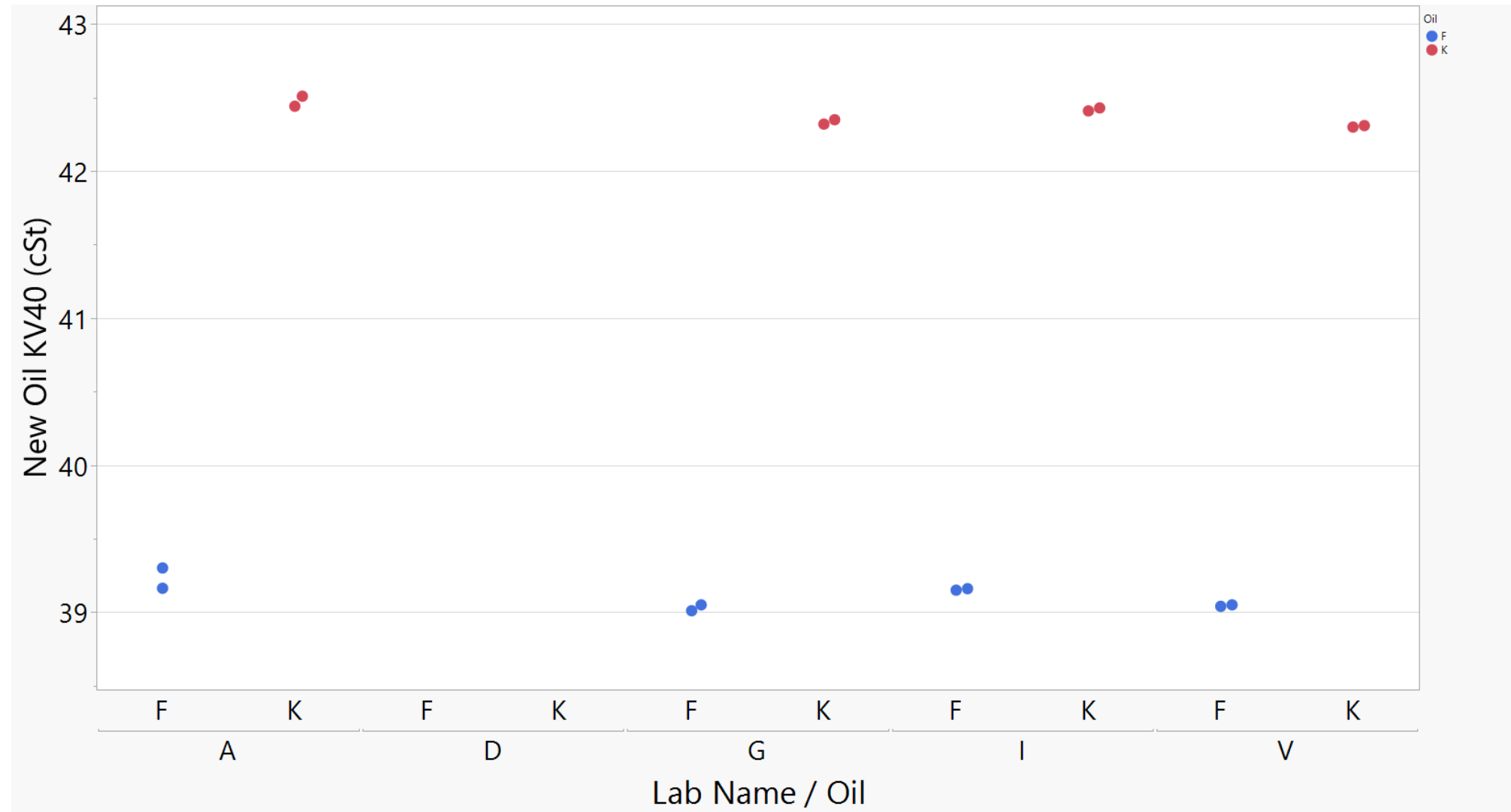
ADVANCED SCIENCE. APPLIED TECHNOLOGY.

New Oil Mg Avg. by Lab and Oil

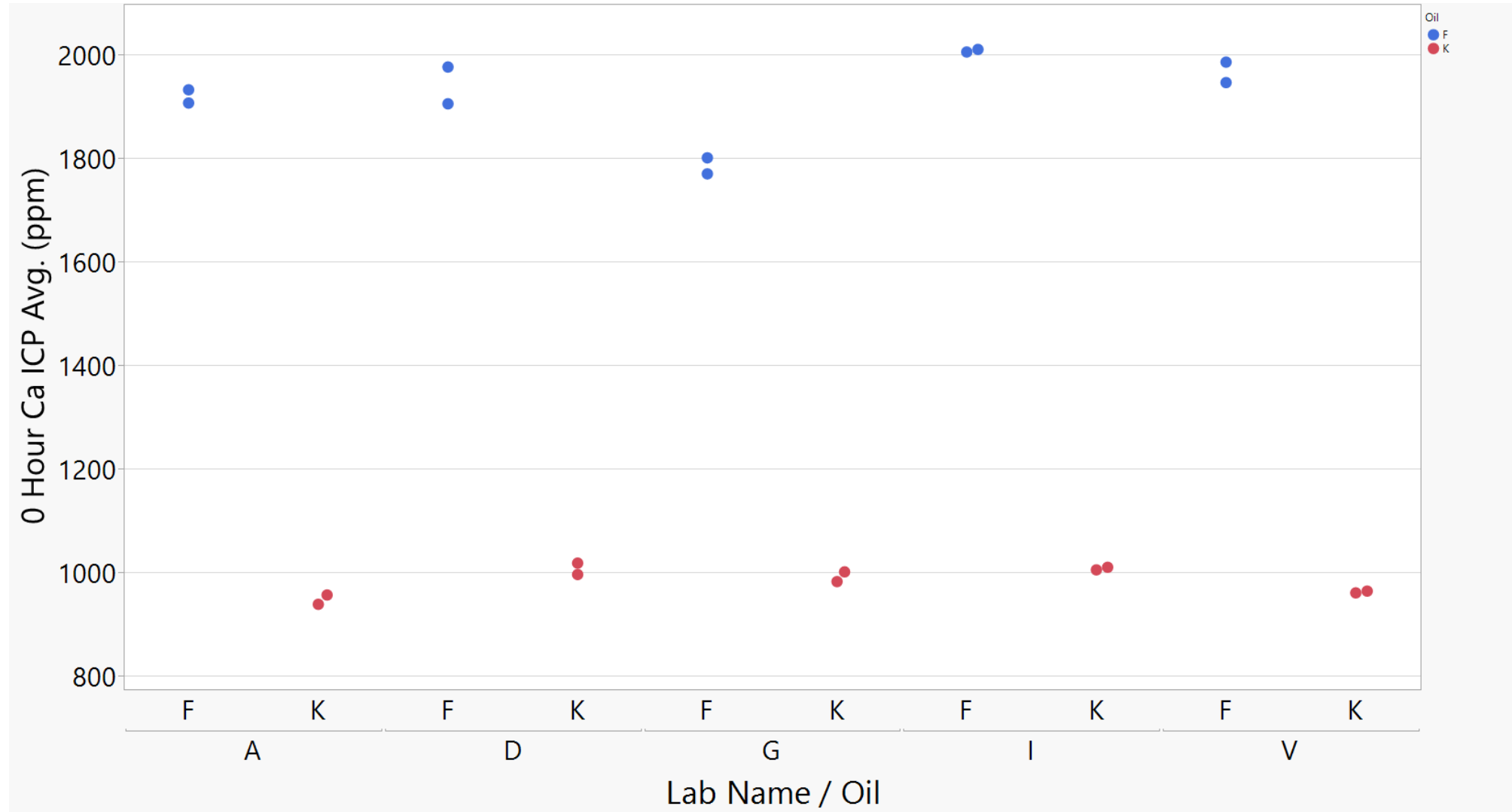


ADVANCED SCIENCE. APPLIED TECHNOLOGY.

New Oil KV40 by Lab and Oil

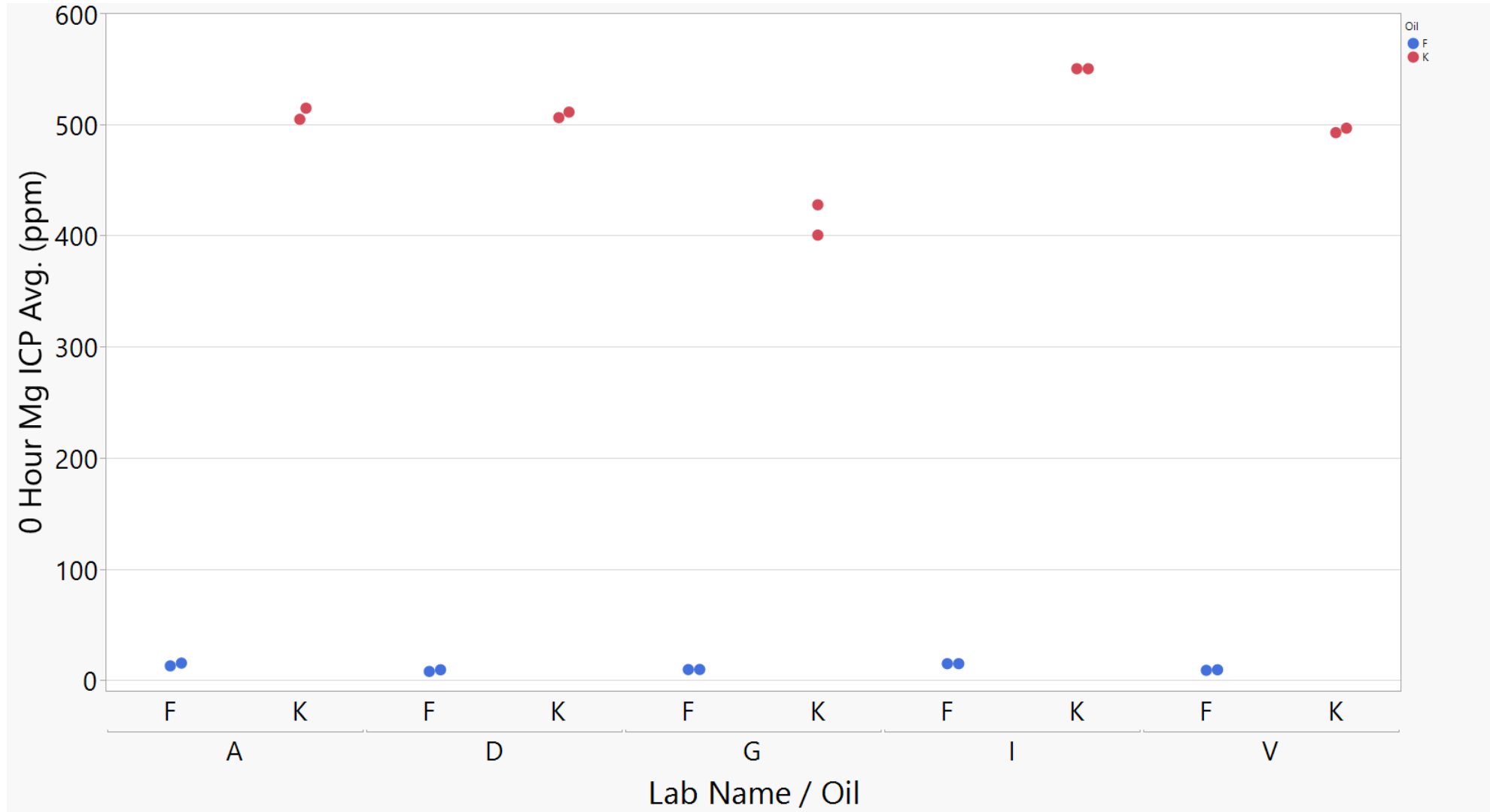


0 Hour Ca Avg. by Lab and Oil



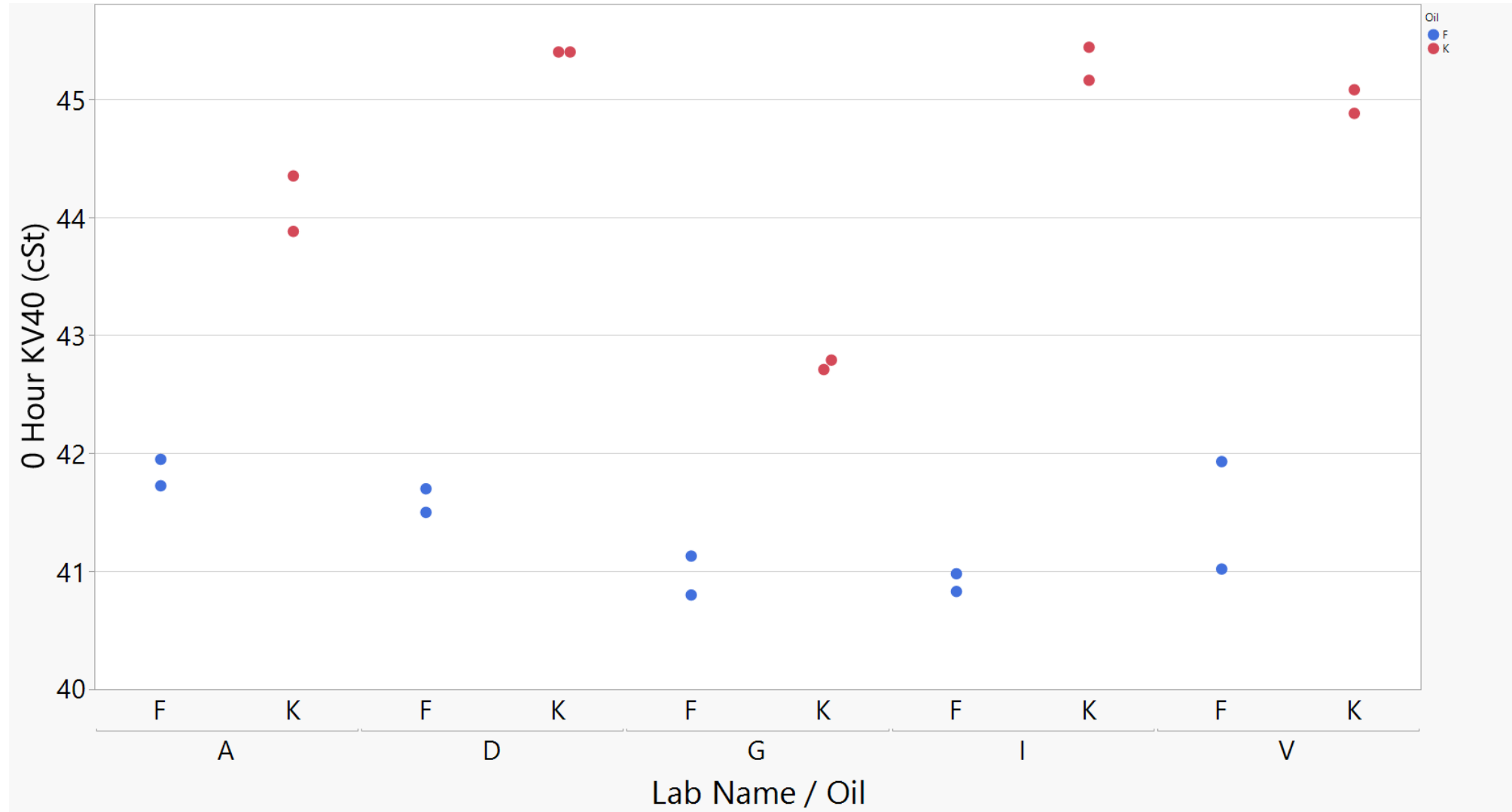
ADVANCED SCIENCE. APPLIED TECHNOLOGY.

0 Hour Mg Avg. by Lab and Oil



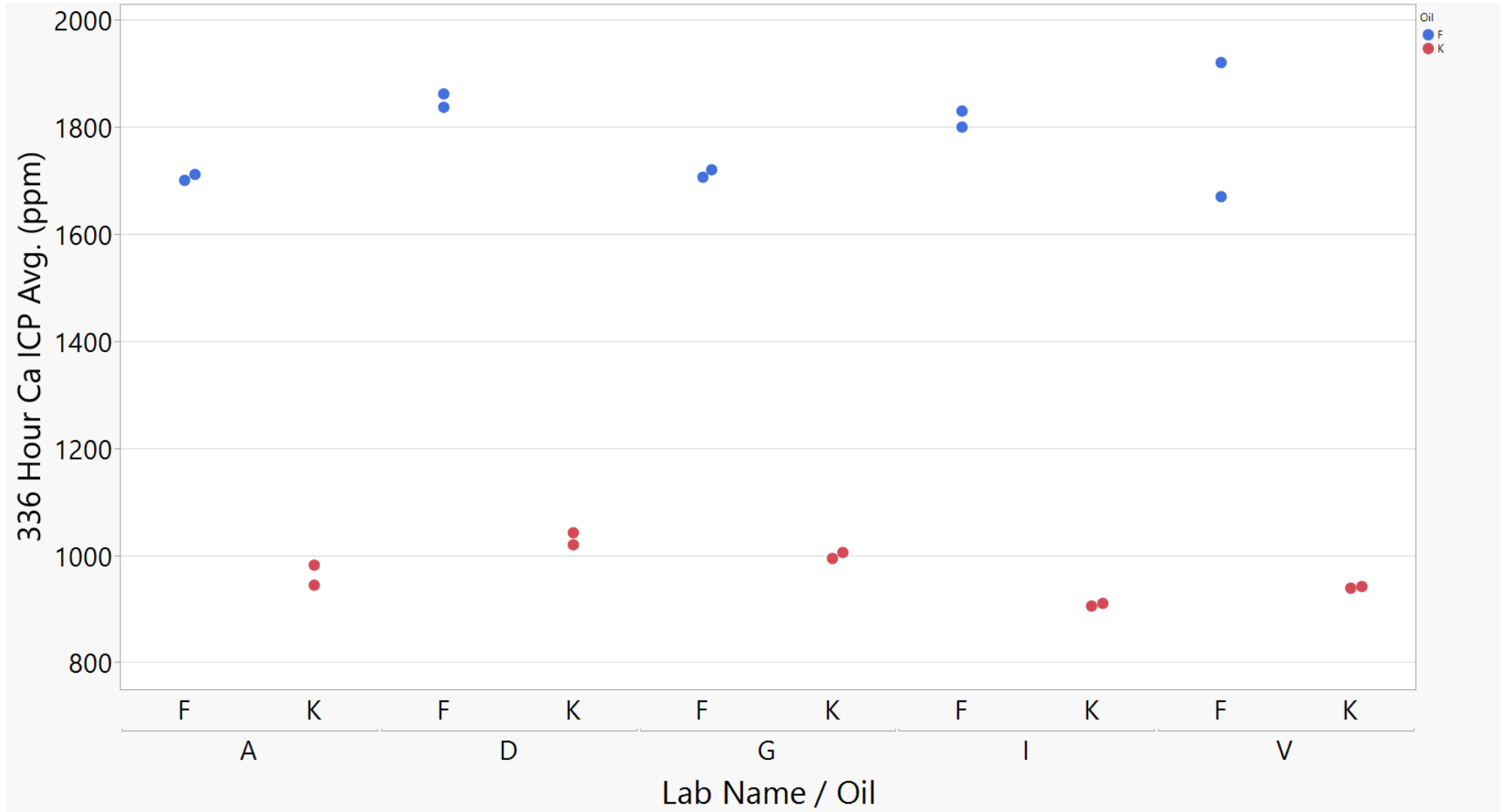
ADVANCED SCIENCE. APPLIED TECHNOLOGY.

0 Hour KV40 by Lab and Oil



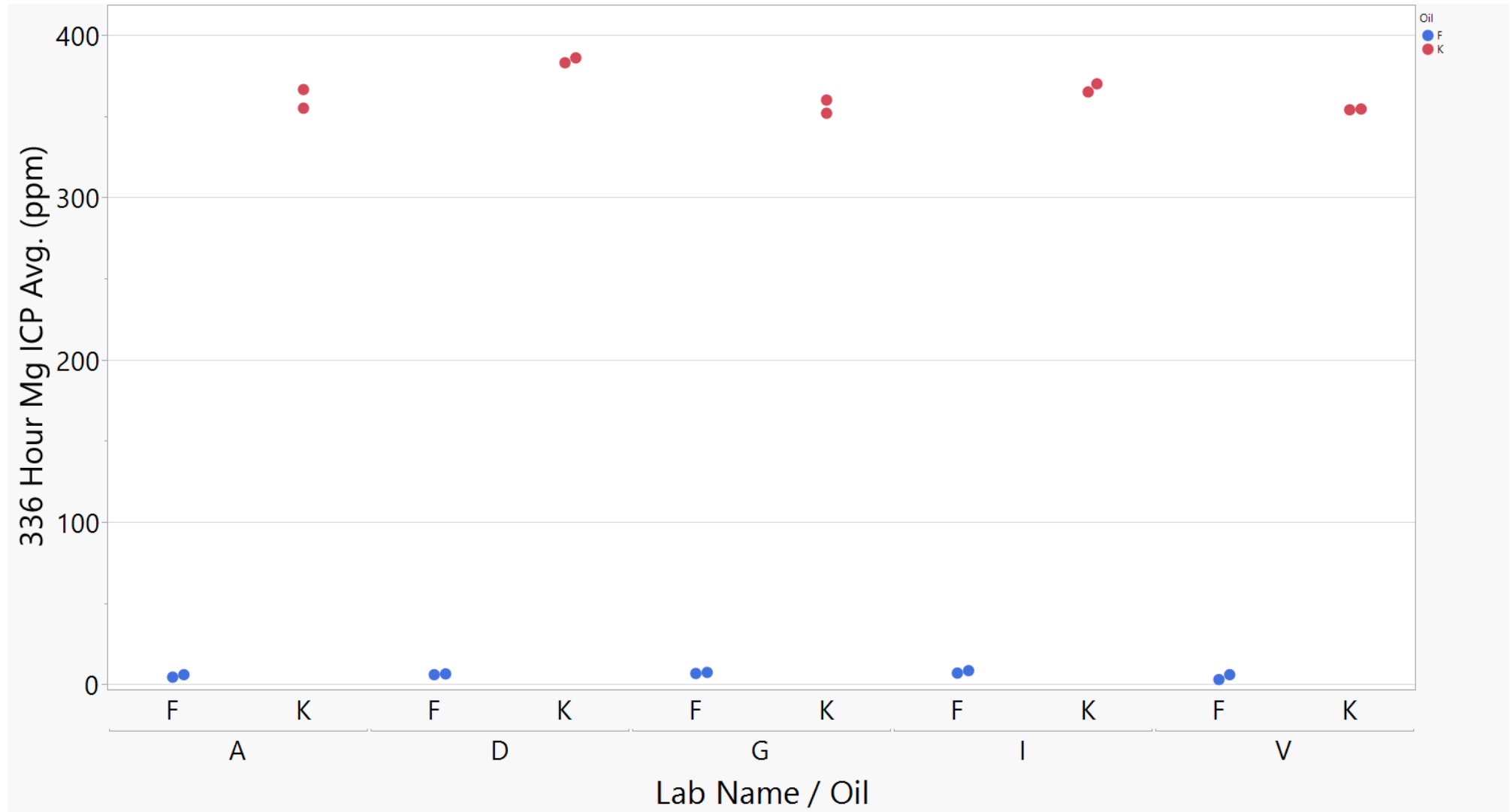
ADVANCED SCIENCE. APPLIED TECHNOLOGY.

336 Hour Ca Avg. by Lab and Oil



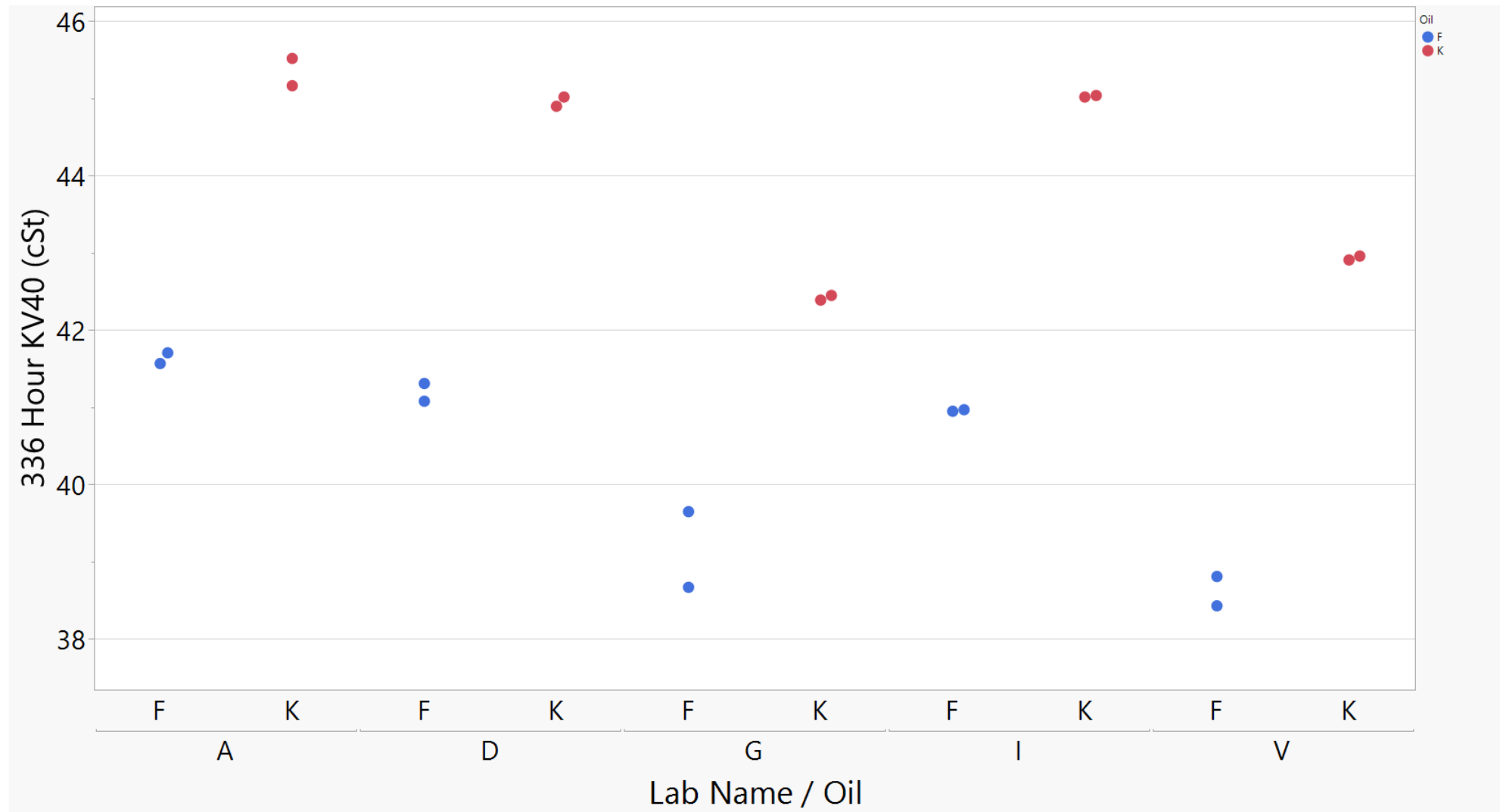
ADVANCED SCIENCE. APPLIED TECHNOLOGY.

336 Hour Mg Avg. by Lab and Oil



ADVANCED SCIENCE. APPLIED TECHNOLOGY.

336 Hour KV40 by Lab and Oil



Next Steps

- Remaining lab run Screening tests (LV tests on high and low performance oils).
- Group to review Screening Test data and understand why the 2 oils are not discriminating for all labs and make suggestions of what to do before starting Pilot Study
- Plan out additional samples to be sent to labs for Screening Test Reruns.
- Determine Pilot Study samples (# and which samples, and # repeats), and method (LV, SV, all intervals)
- Send out Pilot Study samples to Pilot Study labs
- Labs run Pilot Study



Draft Timeline

Task	Date						
	May-Jun 2023	Jul-Aug 2023	Sept-Oct 2023	Nov-Dec 2023	Jan-Feb 2024	Mar-Apr 2024	May-Jun 2024
Develop test procedure and report form (ILS)	█						
Collect and prepare donated oil samples (18 oils)		█					
Screening samples shipped to Screening labs (6 labs)		█					
Screening labs run 4 tests			█				
Data analysis for Screening tests			█				
Pilot Study samples shipped to Pilot Study labs (4 labs)			█				
Pilot Study labs run ? tests				█	█		
Data analysis for Pilot Study					█		
ILS samples shipped to ILS labs (6 labs)					█		
ILS Labs run tests						█	
Data analysis for ILS, generate Research Report (RR) & Precision							█
Ballot test procedure and RR							█
Generate pass/fail limits [Outside this Surveillance Panel]							

Action Items and Next Meeting

- Remaining lab to run Screening Tests and submit data Excel Report to TMC (John Loop) ASAP.
 - Yongli and John to update report form to include filterability times, add column to note filter was pre-wet prior to new oil filterability, update CO2 grade (add moisture, trace gas concentrations, purity, include COA), labs to complete homogenization details, water type, other fields, and any missing data.
 - All labs to review and update submitted Data Report Form to John Loop with additional fields and any missing or clarifying information. **Please submit photos like Lab 1** where sample ID as at top as each column, and each run photo is listed as 0Hr, 336 Hr non-homogenized, 336 Hr homogenized pre-filter (total of 9 photos requested with additional photos optional). Please ask lab to include as much detail as possible. Ask if any of the field names are unclear.
 - Labs to send back data by Friday Sept 15
 - TMC/Yongli post the Screening Data to ASTM Collaboration Area or email to group by Sept 18 for everyone to review prior to next meeting
 - Travis to provide comments on what is needed to setup Pilot study design
 - All participants to review Screening Test data and make suggestions on procedure for likely Screening Test reruns.
-
- Next Meeting: Monday Sept 25 at 8:30AM CDT and every 2 weeks



Thank you for your support!

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

