

C13A MATRIX TESTING RESULTS UPDATE / REVIEW

December 3, 2014 (updated on Dec 4 to include newly posted data)

Performance you can rely on.



Outline



- Available data from TMC as of 12/3/14
- Aeration results - summary table
- Aeration profile plot by Lab
- Aeration profile plot by Sample (Oil)
- Aeration (D4052) % avg. 30-50 hr vs. Oil by Lab
- Avg. Aeration 30-50 hrs (D4052) % vs. Lab by Oil
- Selected operational data comparisons
- Si vs. time by Oil

Available data from TMC as of 12/3/14



- 19 tests posted as of 12/3/14

FTP directory /refdata/diesel/coat/data/matrix op data/ at ftp.astmtmc.cmu.edu.

Welcome to the Test Monitoring Center FTP Server

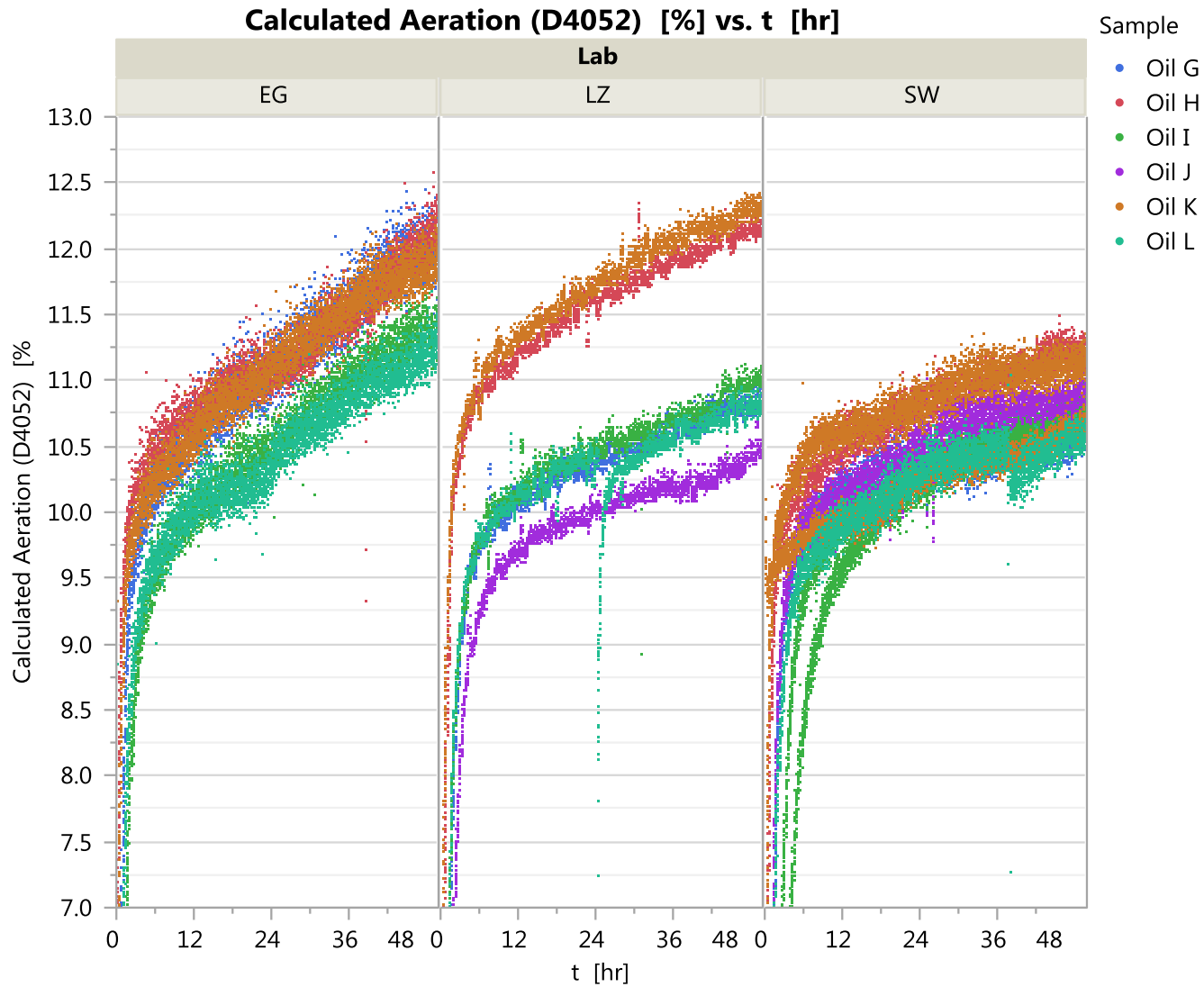
```
<DIR> ..
12/03/14 02:53PM [GMT]          16,955 CAT Aeration Data Template.xlsx
11/19/14 01:20PM [GMT]      9,142,177 Lubrizol Test#1 CMIR#104081 (i R1 Repeat).xlsx
11/19/14 01:20PM [GMT]      8,711,519 Lubrizol Test#2 CMIR#103459 (k R1).xlsx
11/19/14 01:22PM [GMT]      8,849,810 Lubrizol Test#3 CMIR#103625 (q R1).xlsx
12/02/14 01:47PM [GMT]      9,466,330 Lubrizol Test#4 CMIR#103957 (l R1).xlsx
12/02/14 01:47PM [GMT]      9,623,934 Lubrizol Test#5 CMIR#103465 (j R1).xlsx
12/02/14 01:47PM [GMT]      9,912,453 Lubrizol Test#6 CMIR#103452 (h R1).xlsx
12/04/14 07:09AM [GMT]           9,271 Matrix Oil Codes.xlsx
11/18/14 11:17AM [GMT]      6,216,000 SwRI Oil G Run 1 CMIR-103623 (TMC Template).xlsx
11/24/14 02:01PM [GMT]      6,620,378 SwRI Oil H Run 1 CMIR-103450 (TMC Template).xlsx
12/02/14 02:19PM [GMT]      6,851,146 SwRI Oil I Run 1 CMIR-104079 (TMC Template).xlsx
12/03/14 10:25AM [GMT]      7,768,659 SwRI Oil I Run 2 CMIR-104079 (TMC Template).xlsx
11/18/14 11:17AM [GMT]      5,829,532 SwRI Oil J Run 1 CMIR-103463 (TMC Template).xlsx
11/18/14 11:18AM [GMT]      5,281,983 SwRI Oil K Run 1 CMIR-103457 (TMC Template).xlsx
12/03/14 10:57AM [GMT]      7,143,343 SwRI Oil K Run 2 CMIR-103456 (TMC Template).xlsx
11/18/14 11:39AM [GMT]      6,353,424 SwRI Oil L Run 1 CMIR-103955 (TMC Template).xlsx
12/02/14 10:02PM [GMT]      4,377,273 TMC EG11 STRUN12 SOT141124.xlsx
11/25/14 11:14AM [GMT]      3,138,046 TMC EG13 STRUN8 SOT141105.xlsx
12/02/14 10:23PM [GMT]      5,347,865 TMC EG2 STRUN11 SOT141114.xlsx
11/25/14 11:12AM [GMT]      3,502,125 TMC EG4 STRUN9 SOT141107.xlsx
11/25/14 11:12AM [GMT]      3,254,695 TMC EG8 STRUN7 SOT141029.xlsx
```

Aeration results - summary table

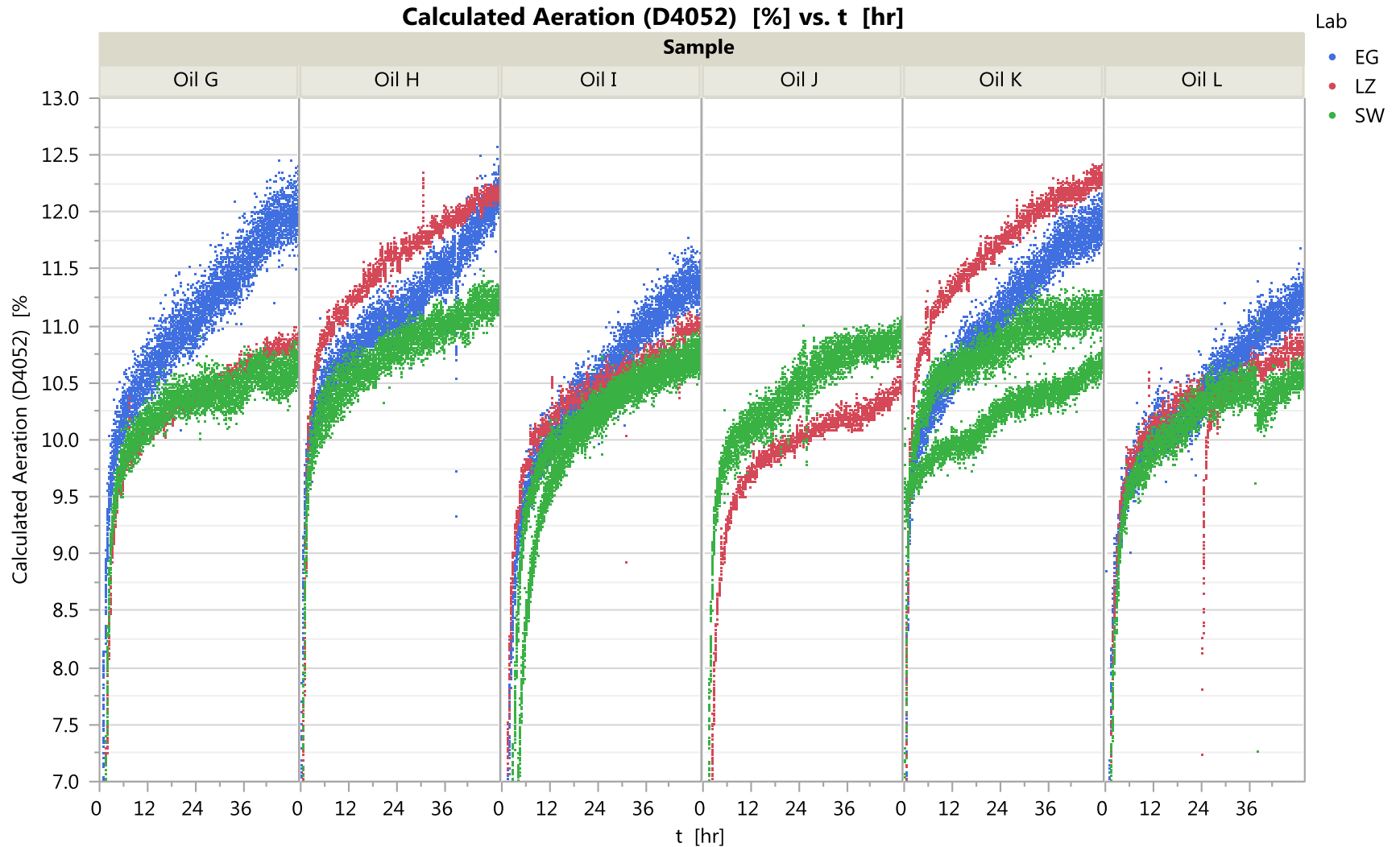


Sample\Lab	SW	LZ	EG
Oil G	10.53	10.70	11.72**
Oil H	11.09	11.99	11.70
Oil I	10.61, 10.60	10.78	11.14
Oil J	10.81	10.26	
Oil K	10.49*, 11.08	12.15	11.68
Oil L	10.56	10.64	10.97
Notes:	Aeration values are 30-50 hr averages in %.		
	* = potentially mild result due to high pump speed signal output		
	** = potentially severe result due to high delta temp across MM		

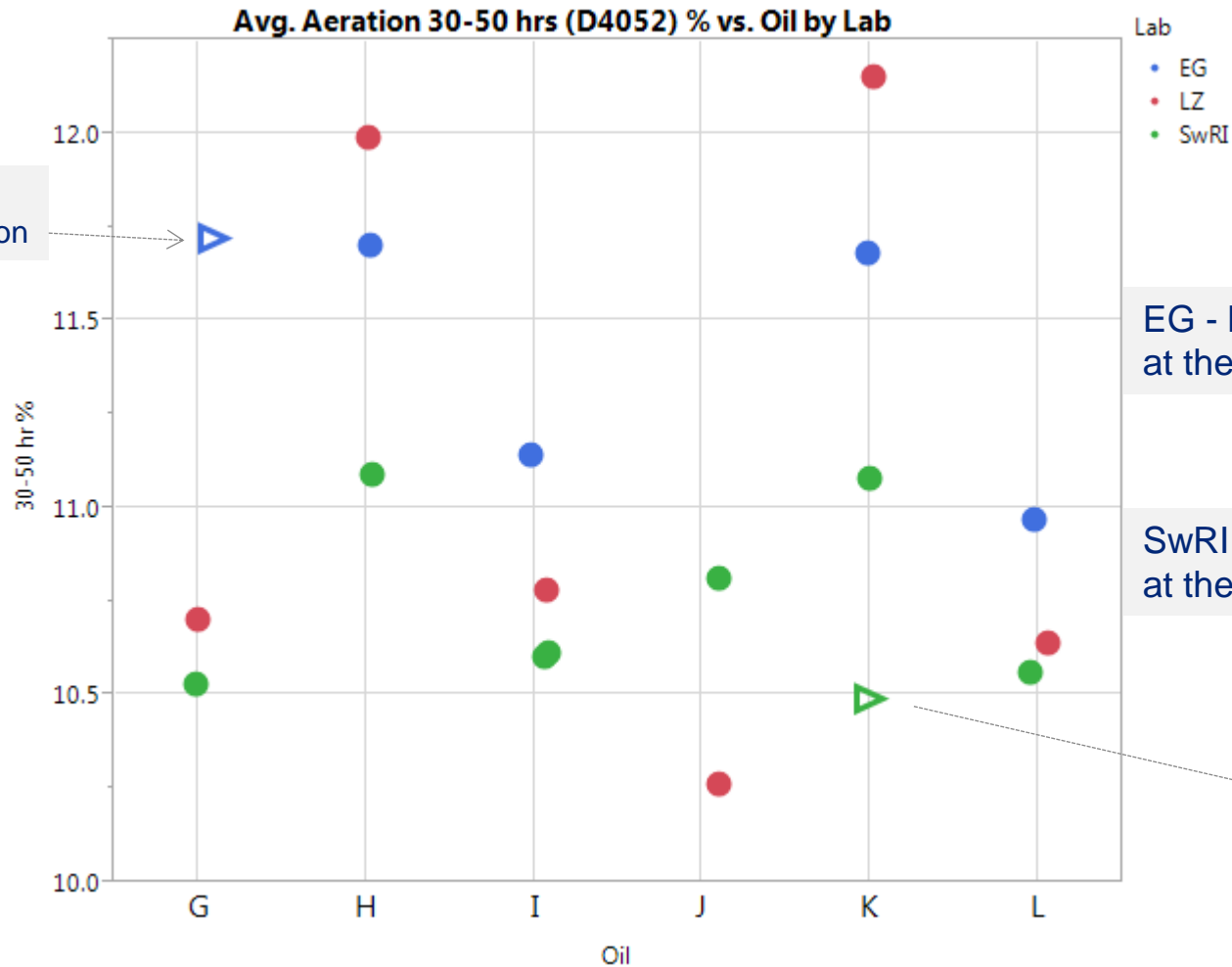
Aeration plots by lab



Aeration plots by sample



Aeration (D4052) % avg. 30-50 hr vs. Oil by Lab



Under investigation

EG - blue cloud of points at the upper half of the plot

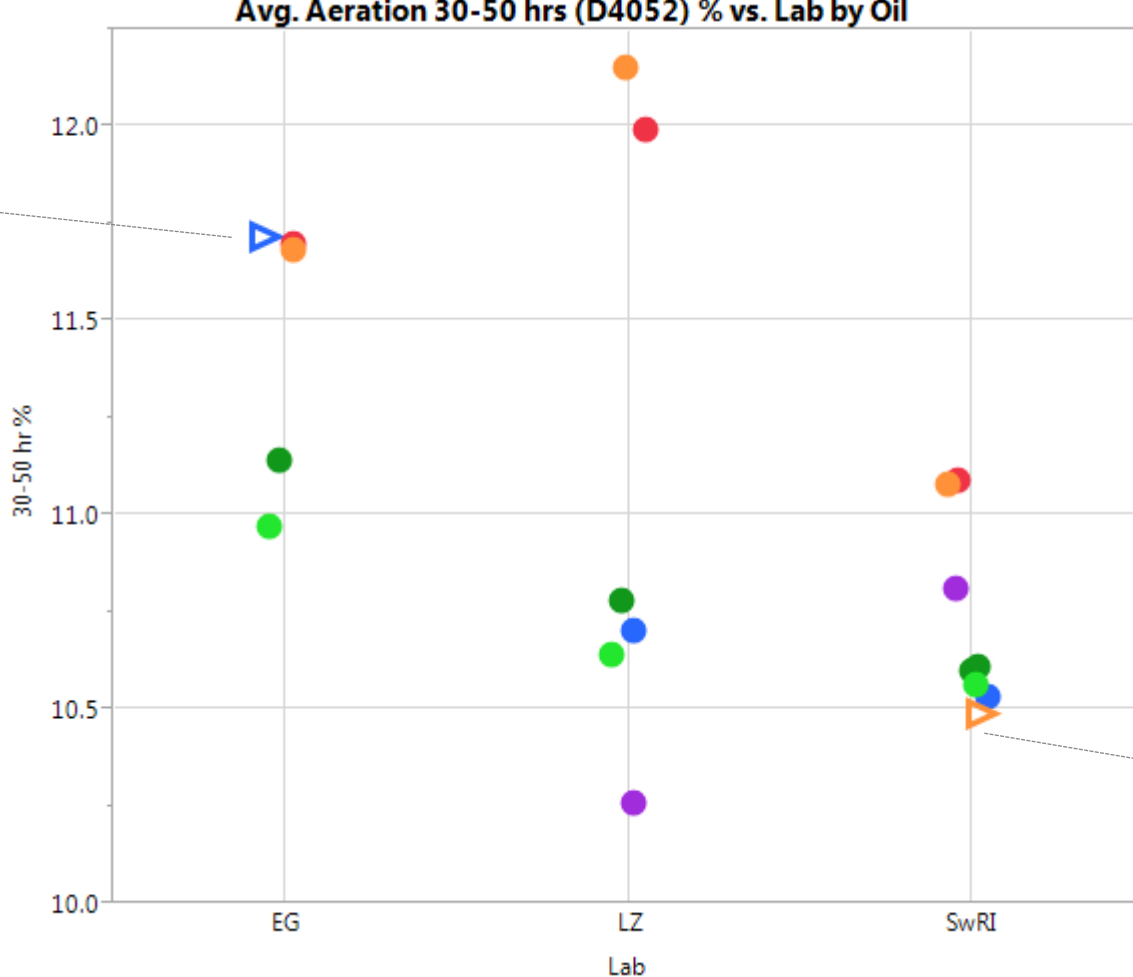
SwRI - green cloud of points at the bottom of the plot

Invalid test

Avg. Aeration 30-50 hrs (D4052) % vs. Lab by Oil



Avg. Aeration 30-50 hrs (D4052) % vs. Lab by Oil

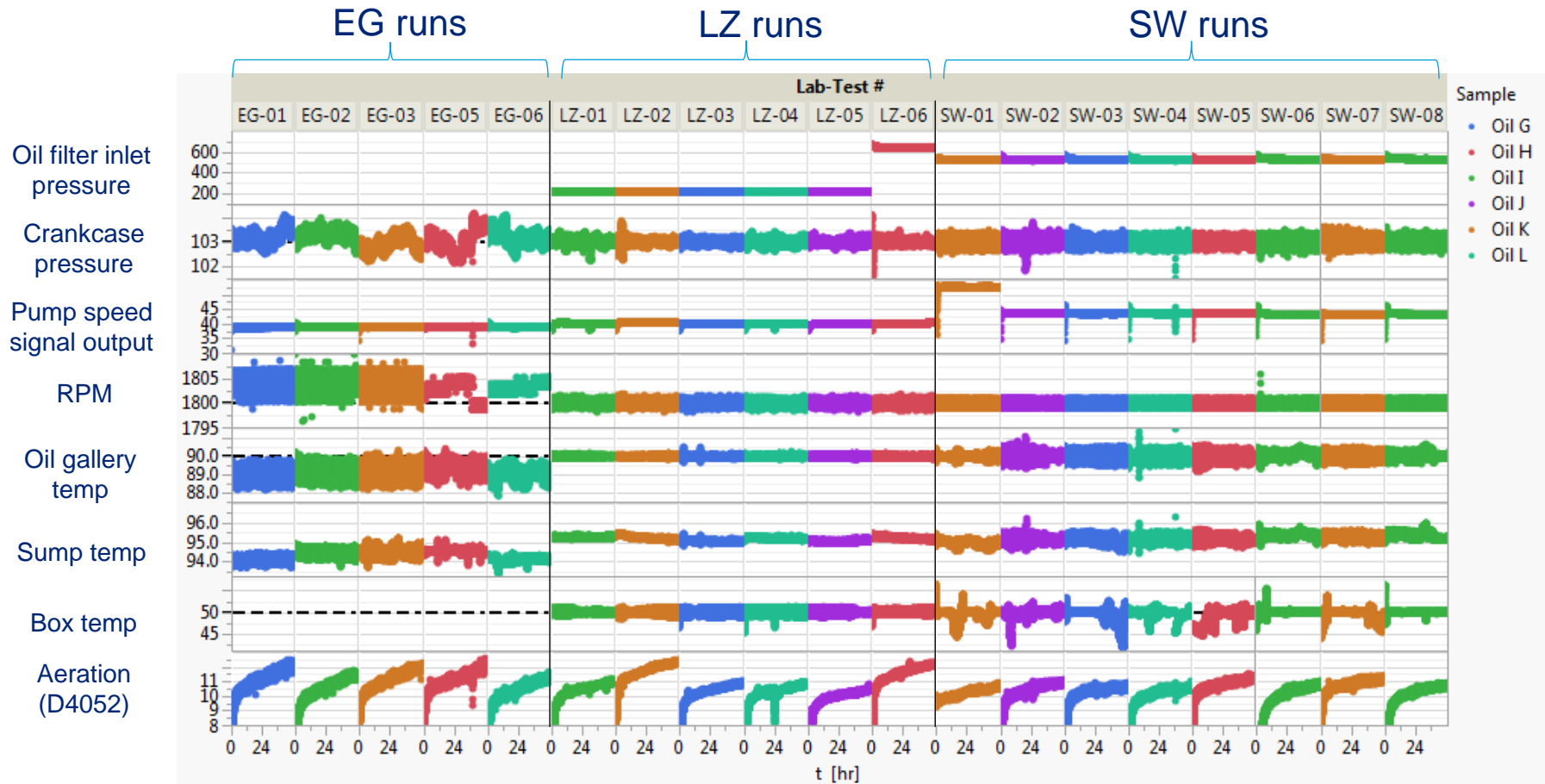


Under investigation

Ranking of the oils is similar across labs except for oil J

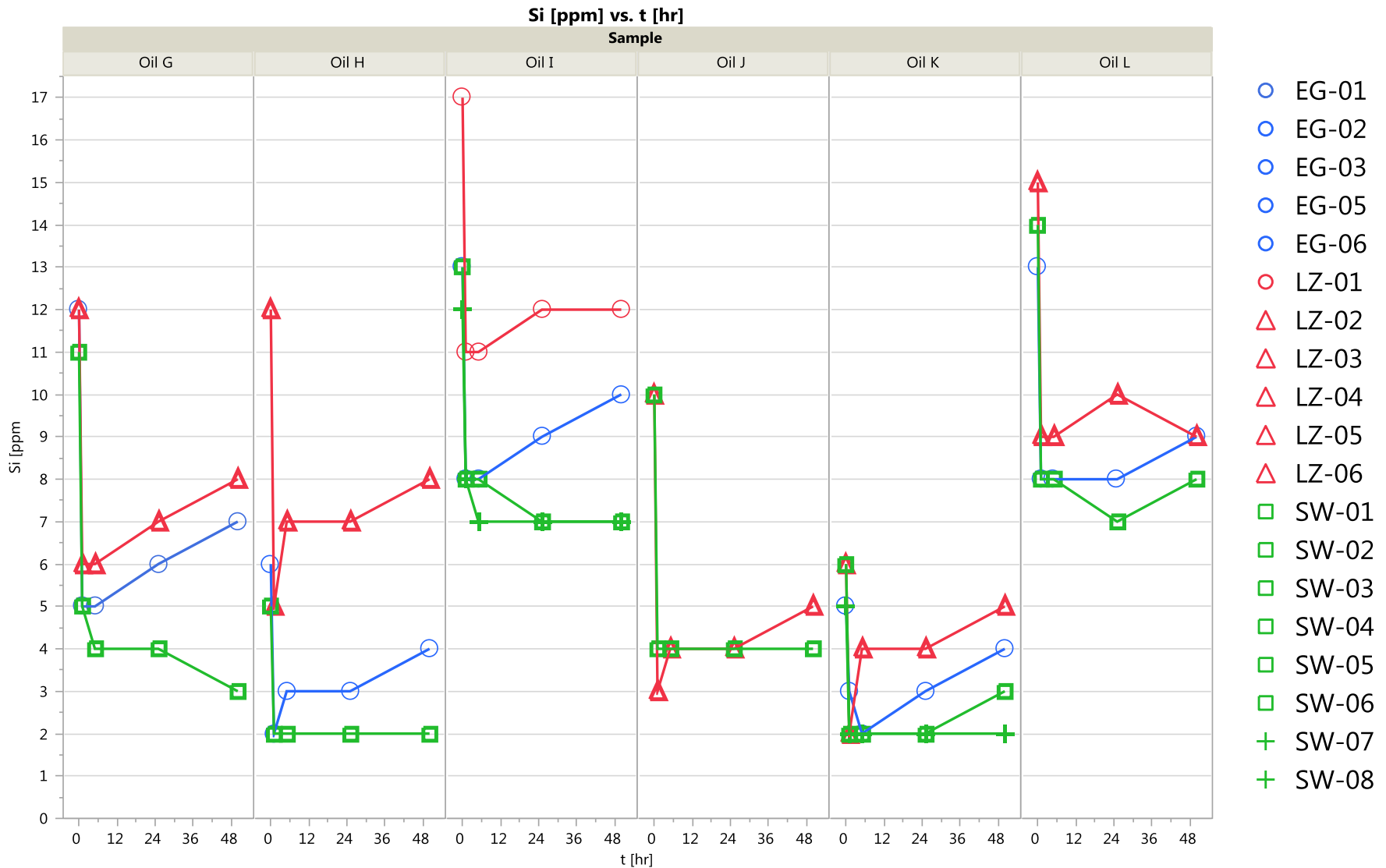
Invalid test

Selected operational data comparisons



Temps in deg C, pressures in kPa, signal data in %

Si vs. time by Oil



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