

CAT Aeration Test Task Force meeting Sep 2, 2014

Proveout Matrix Plan

Attendees: Names Highlighted in **Yellow** attended the meeting

Participant	Name	Email	
1	Caroline Laufer Elisa Santos Pat Fetterman James Gutzwiller Bob Salgueiro	caroline.laufer@infineum.com elisa.santos@infineum.com pat.fetterman@infineum.com james.gutzwiller@infineum.com bob.salgueiro@infineum.com	Infineum
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20	Greg Shank	greg.shank@volvo.com	Volvo
21	Dan Arcy	Dan.arcy@shell.com	Shell

Test plan update, 27 Aug 2014

Lab	Test 0	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6	Test 7
A	LZ oil (OS)	HA	1005	HA	1005	LZ oil start Thurs	LAD1	1005/1004?
B	LZ oil (OS)	HA	1005	HA – Start Friday	LZ oil	LAD1	Obtain info on insulation box - validate	
C	LZ oil (OS) Hi Si	1005	HA	1005-start Thurs	LZ oil	LZ oil*	LAD1	

Done by NCDT meeting

Done since NCDT meeting

*: different batch

Updates

Martin: LAD1 test is done.

Tim: LZ oil and LAD1 tests done

Greg: LZ (batch T) and repeat of LZ (batch S) to increase hours.

Data

1- SWRI, LAD1 oil: Si level changed by 1 ppm. Silicon can be safely considered to have leveled. Test seems normal, so results are due to low aeration level of the oil.

Dips in the oil are due to incidental reduction in the cell temperature. Heater was compensating for the cooling.

- o Different/varying ambient temperatures or cell temperatures (not the MM temperature) can cause a difference in the oil density and/or the density
- o Average of inlet and outlet is still correct, but the difference in inlet and outlet is higher. Question related to the impact of T on the density.
- o **Should a stronger control of temperature be implemented? Encase the MM to control T?**
 - o Build an encasement? Should be the same across all labs? Should Delta T or heat transfer to the MM be the same at all labs? The box should encase all components from the heated line to the return of the sump. Box should be insulated?
 - o **Martin will send a sketch and send the proposed insulation box. Include details of insulation in the box.**
 - o **Tim will do internal research to make the system more repeatable.**
 - o This is an improvement and not a change to the parameters
 - o Need to have one data point to show the impact. This is not a full test, only enough to show the impact of this insulation.

- o Delta T at LZ is 0.4 deg C. Cell temperature will fluctuate per seasons, but lines from the heated line through the MM and to the pump are insulated
- 2- Intertek: Rerun of LZ oil and run of LAD1 were reviewed. Final data will be sent
- 3- Lubrizol: second repeat of the LZ oil (T batch- same as other labs) is similar to the results from Martin and Tim, EOT at 12.3 %. Av of 30-50 hrs is ~11.7%
Si level of the second LZ oil is 6 to 5 ppm.

Criteria for the Si stabilization: should be the delta of Si from the min (the drop following the initial drop) to the max: delta should be ~2 ppm?

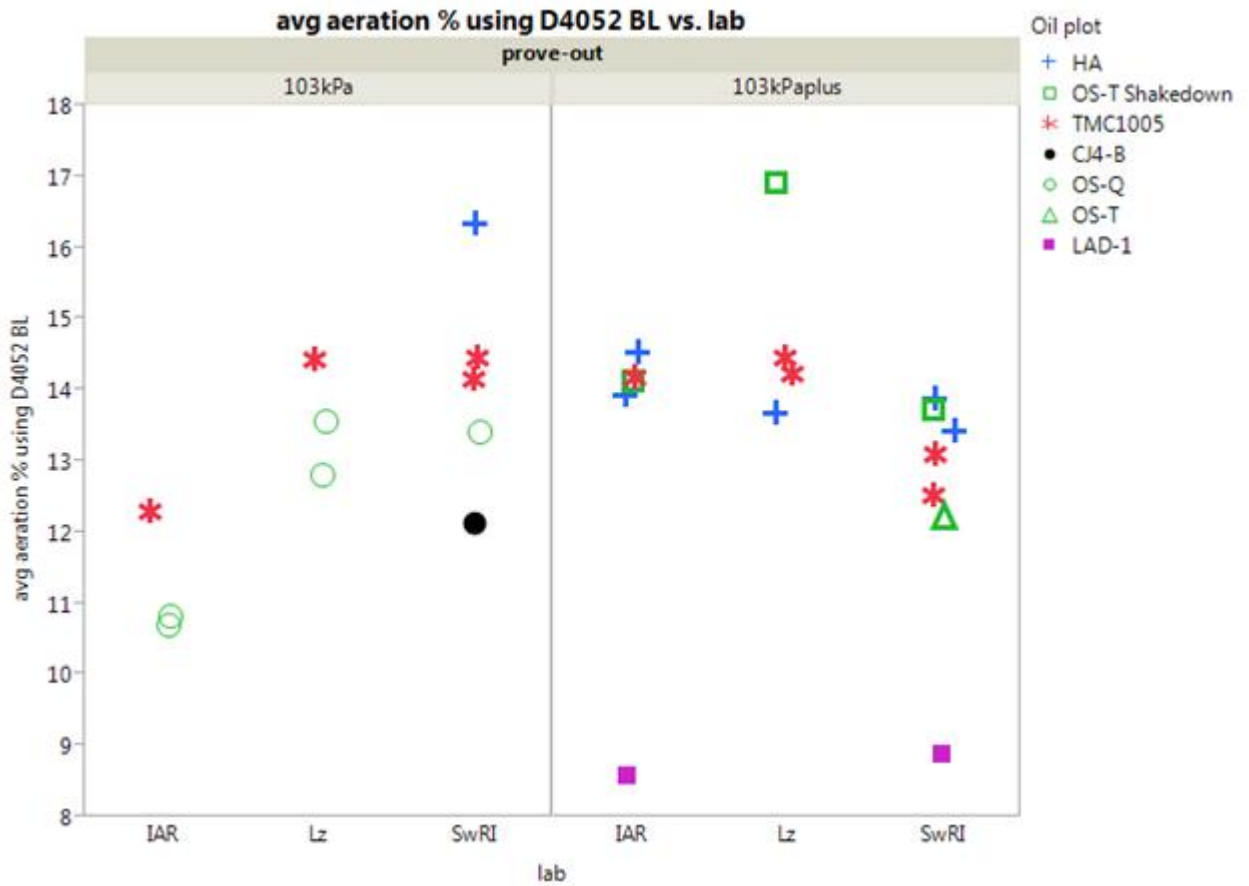
LZ: Send the data to TMC and Elisa

Intertek: send the data to TMC.

Next meeting: Thursday afternoon ~1:30. Mainly, meeting with the labs. TF will be updated on the details.

Meeting after: Wed, Sep 10, at 1:00 PM

Plots of the data up to this meeting



Prior data on the engine hours and Si impact

