

COAT MM Sensor Calibration Procedure Conference 2-2-2017

Teleconference Attendees:

Jim Gutzwiller (Chairman), Elisa Santos – Infineum

Jim McCord, Jim Carroll (Secretary), Randy Harmon – SwRI

Alex Ebner – Lubrizol

Tim Griffin – Intertek

Hind Abi-Akar, Mark Jarrett – Caterpillar

Sean Moyer – TMC

Agenda: Update on progress to run new calibration procedure.

Use older CAT DEO-ULS for calibration prove out because newer oil may be CK-4.

Tim got Intertek's enclosure temperature to 90C by heavily wrapping it.

He averaged data at the stabilized temperatures for 2 minutes at 1 Hz.

Over the whole range it was not quite linear, but was more linear using 70, 80, and 90C data.

Jim G: Emerson still compensates for temperature, but we cannot adjust it.

Comment: We found in earlier tests that the correlation diverged from the linear extrapolation at higher temperatures.

Hind: Do we need to have the other labs do this?

A: Yes.

Tim used the as-written new procedure with flushes, and then ran the oil through the sensor for ~~40~~ 5 minutes at idle. The sensors are all oriented vertically to allow any bubbles to escape out the top of the sensor's internal loop.

Tim used a new set-aside CAT filter from TEI.

McCord: There may be a shift in aeration number at EOT. But running this calibration procedure should get all the lab results closer together. But, it does not address engine-to-engine differences.

Alex: What do we do if Emerson changes something in future product?

A: We will have to monitor firmware and software changes along with model number. They should be added to TMC flat file uploads.

McCord: How close do we have to match D4052 results to verify the new calibration?

Tim: Within 0.001g/cc. This is ~0.1% aeration.

Hind: What is the next step?

A: All labs run the procedure once enclosures can make higher temperatures.

Hind: Should we run CJ-4 or CK-4.

Tim: It doesn't matter for the prove-out tests.

McCord: We will see how hot the current enclosure will go.

Alex: Lubrizol has a PO out for new equipment and then needs to have Emerson come to the lab to verify the transmitter and sensor settings. Ideally this will happen at the end of next week, reality is the following week.

Jim C: We are rebuilding the enclosure and should be completed its build up ~ 2 weeks. There is a wait for enclosure hardware and insulation to arrive. We plan to move the PUCK 800 from its current mount on the sensor to a remote location. The PUCK 800 is not rated for more than 65C. Emerson has been advised of our plans and is preparing a quote.

Tim: Intends to run the engine at low idle for 5 hours and then re-run the calibration from 30-90C.

Mark suggested he run a D4052 from a sample at 5 hours.

Next meeting 2/20/2017 at 1:00 pm CST.