

ASTM D-7038 (L-33-1) MOISTURE CORROSION TEST
SURVEILLANCE PANEL MEETING

For LRI #147
November 7, 2007
PRI Headquarters
Warrendale , PA

AGENDA

I. Call to Order

II. Approval of Minutes

Waved based on chair late and not notifying committee of availability
04/11/07
08/08/07 Last Meeting

III. Business

Warm-up / Foaming issues found in some labs (Don Lind TMC).

Intertek Parc has/is attempting to ramp motor speed slowly to eliminate foaming with reference oils. To date the 1 minute ramp has not been effective. They still run about the same percentage of foaming in reference tests.

Current severity of the L-33-1 Test

IV. New Business?

V. Summary of Action Items

VI. Summary of Motions and Votes

VII. Adjourn Motion

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Motoring Stand Start-Locate the appropriate Honeywell Controller for the stand/oven to be used. Cycle the on/off switch, the red test stop lamp will switch off and the green operation lamp will come on. Press the run/hold button on the face of the appropriate Honeywell Controller. An "R" should appear next to the axle temperature. This will start the program. Make certain that an "A" appears above the axle temperature. If not, press the manual/auto button on the controller. The "A" should appear. Place the motor stand/storage box switch in the motor stand position.

Special Instructions Stand Variable Motoring

- 11.1.1.1 Make certain the motoring stand is unplugged at the wall twist lock plug prior to this operation.
- 11.1.1.2 Locate the speed controller. Verify the power switch is off and the control knob is set to 0 (zero).
- 11.1.1.3 Locate the motor plug on the stand contactor bracket. Unplug the motor from its output plug and plug it into the speed controller's output connection. The plug will only fit the output side of the controller.
- 11.1.1.4 Plug the speed controller into the outlet on the contactor bracket.
- 11.1.1.5 Plug in the motoring stand power-cord into the wall outlet.
- 11.1.1.6 Push the motor start button. This will provide power to the speed controller and the fan/heat circuit.
- 11.1.1.7 Switch the motor speed controller into the ON position.
- 11.1.1.8 Assure that the water is ready for injection.

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This entire operation of injection and motor control shall not exceed 5 minutes total time.

- 11.1.1.9 Turn the motor controller until 500 RPM is reached (about 20% on).
- 11.1.1.2 The axle will begin to spin and the computer should begin logging. Record time and the initial oil temperature. Record in the Operator's Log and ASTM Forms. The axle must rise to $180 \pm 1^\circ \text{ F}$ ($83 \pm 0.6^\circ \text{ C}$) in less than one hour.
- 11.1.2.1 As quickly as possible or within two minutes of motor start slowly inject $1.00 \pm .02$ fl oz. ($29.6 \pm 0.6\text{mL}$) of specified water through the open full port valve hose fitting.
- 11.1.2.2 Install the pressure control a connection on the valve assembly water was just placed in.
- 11.1.2.3 Slowly increase the speed on the motor using the speed controller until $2500 \pm 25\text{rpm}$ is reached (about 100% on). Run the warm-up per procedure after the motor reaches speed.

Motor starting or ramping is in question based on the labs starting differently causing some of the severity issues. The committee agreed to standardize on motor starting procedure by modifying section 11.1.3 To say we bring the drive motor to 2500rpm immediately then add water. Don Lind and the Chair will word smith this into the section of the procedure.

11.1.3 *Oil Reservoir Overflow*-On rare occasions, a small amount of the test oil/water emulsion will foam up from the carrier into the accumulator during heat-up.

- 11.1.3.1 When the oil temperature reaches ***NOT MORE THAN 175° F or the accumulator is nearly full*** stop the motoring and heating (cool the unit) until the emulsion is sucked back into the axle.

11.1.3.1.1 Push the motor stop button.

11.1.3.1.2 Locate the Honeywell controller appropriate the run stand that is foaming. Press the Man/Auto button. The word man should appear on the main screen.

11.1.3.1.3 Press the lower display button and scroll until the % out screen appears.

11.1.3.1.4 Press and hold the down arrow and then the up arrow momentarily twice. This will take the output off the controller and the cooling fan will come on when lower screen reads 000.

NOTE: total warm-up time is not to exceed 1 hour. Use caution how long the unit is cooled. There are occasions when the material will not completely drain back into the carrier as the unit reaches operating temperature. Labs shall

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report the estimated amount that did not return to the carrier in the comment section of the test report.

11.1.3.2 When the accumulator is empty start the motor and control.

11.1.3.2.1 Push the motor start button.

11.1.3.2.2 Locate the Honeywell controller appropriate the run stand that is foaming. Press the Man/Auto button. The letter A will replace the man on the main screen. The test is now back in automatic control.

Discussion on the oil foaming and to return or just capture the foaming oil in the reservoir is a legitimate issue.

It is discussed to add additional anti-foam on the foaming oil. This was rejected because of the potential of affecting the test.

A chemist noted that the anti-foam is likely to fall out of the oil over time and stratification can happen with reference oils as well. The question was brought out whether the oil is being shaken properly. The labs are to review their shaking process in the lab. The TMC was asked to issue a memo to describe the shaking of oils.

The shaking procedure is as follows:

Can Shaking Procedure—Effective immediately—Prior to test invert the oil can and vigorously shake for one minute then turn the can 90 degrees and shake for an additional 1 minute.

Motion: Jerry Gropp

Second: Don Lind

7 in favor unanimous

Lubrizol and Afton volunteered to run a D-892 foam test on both the passing and discrimination oil that have been in storage for a long period of time. The TMC will decode one pass and one fail oil that has been in the lab longest. Without disturbing the can each lab will sample the oil at the top, middle, and bottom. The remaining oil in the can will be vigorously shaken to homogenize the remaining oil and sample the remaining oil. ASTM D-892 will be run on all four samples of each of the two oils to determine the location on the anti-foam in the oil can.

Motion: Don Bartlet

Second: Brian Koehler

Vote: 7 in favor unanimous.

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The chair is to convene a conference call on Thursday November 15, 2007 at 10:00am EST with the labs to discuss the foaming issues and what can be done to return the foam into the axle.

Current severity of the L-33-1 Test

Severity continues without improvement.

- IV. Adjourn Motion
Motion: Don Bartlet
Second: Cory Koglin