

Oil Seal Compatibility Meeting Minutes

TACOM (Detroit Army Arsenal) Warren, MI

8/12/09

Attendees:

Don Lind (TMC)	Sam Higuichi (Afton)	Allen Comfort (Army)
Galen Greene (Lz)	Jerry Gropp (Lz)	Don Bartlett (Lz, phone)
Brian Koehler (SWRI)	Dale Smith (Intertek)	Bruce McGlone (ArvinMeritor)
Mike Kasimirsky (TMC, phone)	John Matter (Lz, phone)	Jennifer Keiter (Lz, phone)
Becky Grinfield (SWRI, phone)	Thelma Marougy (Eaton, phone)	

A motion made by D. Smith and 2<sup>nd</sup> by J. Gropp to approve the meeting minutes from the past three OSCT Surveillance Panel minutes posted on the TMC website was unanimously approved (6 approved):

- 5-13-09
- 6-8-09
- 6-16-09

There are multiple baths available at both Lz and SWRI with no known related problems or test severity issues. There is a sufficient quantity of elastomers available in the industry:

- |                   |        |            |                  |
|-------------------|--------|------------|------------------|
| ■ Fluoroelastomer | FL377  | 200 slabs  | Approved 5/13/09 |
|                   | FL378  | 200 slabs  | Approved 6/8/09  |
| ■ Polyacrylate    | PA339  | 228 slabs  | Approved 2/11/09 |
|                   | PA340  | ~200 slabs | Approved 6/16/09 |
| ■ Nitrile         | NI333  | ~300 slabs | Approved 2/11/09 |
|                   | NI334  | ~300 slabs | Approved 2/11/09 |
|                   | NI-exp | 30 slabs   | Approved 5/13/09 |
- Allows Freudenberg to use of new kneader for blending nitrile and polyacrylate

Initially the nitrile batches NI333 and 334 were rejected since the %volume and %elongation were below the Shewhart severity limits in ref oil 168. The panel agreed to widen ref oil 168 acceptance bands using standard deviation from previous discontinued ref oil 162 with data generated from 2000 (~138 data points and ~6 lots of NI base polymer). An action item was completed to re-test gear oils in NI333 or NI334 that initially passed on older lots of nitrile to compare results vs data generated in one of these earlier lots of NI333. The data below shows that the new lot NI333 gives essentially the same data as

the older lot of NI329, which provides confidence to the decision to allow the widening of the NI acceptance bands.

<b>Gear Oil</b>	<b>Lab/bath</b>	<b>Date</b>	<b>NI lot #</b>	<b>% Elongation Change</b>	<b>Shore Hardness</b>	<b>% Vol Change</b>
GOR-14 Mineral 80W-90	SR-2	5/23/2003	NI-327	-45.8	1	2.74
GOR-14 Mineral 80W-90	SR-2	5/8/2009	NI-333	-41	-1	2.4
FYR1848B Partial Synthetic 75W-90	SR-2	5/31/2001	NI326	-33.6	-5	8.11
FYR1848B Partial Synthetic 75W-90	SR-2	6/19/2009	NI-333	-35.9	-5	6.6
GO11840 Full Synthetic 75W-90	SR-2	10/22/2004	NI-328	-31.2	-5	6.99
GO11840 Full Synthetic 75W-90	SR-2	6/19/2009	NI-333	-30	-6	6.4

OSCT Surveillance Panel would like to extend shelf life for NI, PA, and FL from 2 years to 5 years. NI-329 manufactured 11/21/03 is being evaluated (repeats) as per the elastomer approval process for this batch to determine if the shelf life can be extended to 5 years. Lz completed the testing, but awaiting SWRI data to allow the SP to review the results.

Lz transitioned to the Instron calibration method referred to as the “Bluehill” version, which resulted in upgrades to Instron software and electronics since Instron warned that previous versions would be obsolete and not supported. It took about 1.5 months for complete installation and ~\$19,000/upgrade. SWRI is still using “old” calibration method, but both versions should yield same results. A motion was approved 5/13/09 to include Bluehill method in D5662 Annex. TMC will issue an OSCT info letter to revise Annex A3 to ASTM D5662 to allow the use of Bluehill, while maintaining Annex A2 to allow the current calibration method until SWRI converts to Bluehill when necessary. SWRI has two Instrons, so they can convert one at a time to avoid test interruption.

Meeting adjourned 8/12/09 at 1:40 pm.