

OSCT Surveillance Panel Meeting Minutes

11/7/2007

D. Bell

Meeting Attendance:

B. Grinfield (SWRI, phone) D. Lind (TMC)
D. Bell (Afton) S. Rea (Infineum)
J. Gropp (Lz) C. Kasper (SWRI, phone)
D. Bartlett (Lz) S. Higuchi (Afton)
D. Smith (Intertek Parc) C. Koglin (Afton)
B. Koehler (SWRI) B. Grinfield (SWRI, phone)
J. Keiter (Lz, phone) C. Schenkenberger (Lz)
D. Misich-Korpi (Lz, phone) M. Haire (Chevron)

Approval of 8/8/2007 Surveillance Panel Meeting Minutes

A motion was passed unanimously (7 approved/0 opposed/0 abstention) to approve the August 8, 2007 OSCT Surveillance Panel meeting minutes that are available on the TMC website.

Status of OSCT ASTM D5662

There are multiple baths available at both Lubrizol and SWRI with no known “stand” related problems or test severity issues.

Approval of New Polyacrylate

A new lot of Polyacrylate (PA338, 300 slabs) was approved by the Surveillance Panel since all of the data presented by the Test Monitoring Center fell well within the Shewhart severity limits in 160-1 and 161-1 reference oils. This lot of PA338 was released to the test labs by Test Engineering Institute (TEI) for general use for ASTM D5662.

Elastomer Inventory

Current elastomer inventory is sufficient at both test labs:

	<u>Lot #</u>	<u>Lz</u>	<u>SWRI</u>
Polyacrylate	336	---	7
	337	98	102
	338	300 total slabs yet to be shipped by TEI to both labs	
Fluoroelastomer	369	24	---
	370	---	65
	371	46	---

Nitrile	331	47	5
	332	20	110

Bath Temperature Reporting

A recent OSCT information letter was issued to require that the test temperature be measured by RTD or thermocouple in a dummy tube filled with bath oil from 1 minute samples is to be maintained as follows for the test to be operationally valid:

- Polyacrylate and Fluoroelastomer 150 +/- 1°C
- Nitrile 100 +/- 1°C

The Panel is challenging the stringent requirement that a reading outside the tolerance of +/-1°C will make the test invalid because they believe it is too restrictive. Over the 240 hours, 14,400 temperature measurements are taken, so one data point is 0.007% of the time. An action item was given to TMC to review OSCT data and propose an alternate method of determining tolerance limits for temperature measurements.

Potential New Elastomers for OSCT

The automotive gear industry was surveyed to determine if the current Polyacrylate, Fluoroelastomer, and Nitrile seals are still relevant or if others should be considered for testing via ASTM D5662. Responses were obtained from many seal manufacturers and axle OEMs including Bruss, Federal Mogul, Parker Hannifin, Freudenberg, SKF (Chicago Rawhide), Eaton, Ford, GM, Chrysler, Army, Arvin Meritor, American Axle, Toyota, and Timken. From the survey, the automotive seals that could contact gear oil listed from highest to lowest % usage:

- FKM Fluoroelastomer (~85%, currently tested per D5662)
- FKM modified-Aflas[®] TFE/P (tetrafluoroethylene/propylene copolymer, ~10%)
- Hydrogenated nitrile (HNBR, currently we test non-hydrogenated nitrile per D5662)
- Ethylene-acrylic (AEM, Vamac)
- Polyacrylate (some axle suppliers discontinued use, currently tested per D5662)
- Peroxide-cured nitrile (currently we test more severe sulfur-cured nitrile)
- Carboxylated nitrile (wheel end)
- Sulfur-cured nitrile (wheel end, currently tested per D5662)

We found that ~85-95% of seals coming into contact with gear oil are Fluoroelastomer. Since Fluoroelastomer is already tested via D5662 this gave the SP some confidence that the seals we are testing are still relevant. We will try to determine the exact type or formulation for the current Fluoroelastomer being tested to decide if it reflects the majority of the Fluoroelastomer being used for automotive gear applications. In addition, the survey noted that Polyacrylate is not used very often any more but that hydrogenated nitrile is used to a small extent. Since we already test the more severe un-hydrogenated nitrile, this will continue, as well as Polyacrylate testing. There are no seal issues in the field, so there is no immediate need to change seal types that are tested via ASTM D5662.