Agenda - the meeting agenda is shown in the message below.

Attendance - Jeff Clark, Rich Grundza, Jim McCord, Bob Campbell, Jim Matasic, Andrew Stevens, Jim Moritz, Pat Fetterman, Jim Gutzwiller, Mark Sutherland, Zack Bishop, Bill Larch, Kevin Daly

Membership - Andrew Stevens is now the voting member for Lubrizol, replacing Jim Matasic.

Low Viscosity Grades - lower viscosity grade oils are becoming more common in SCOTE testing. The lower grades can have an effect on oil pressure control. It was moved and seconded (Matasic, McCord) that all SCOTE test procedures be modified to reflect the following: Oil pressure operational specifications apply only to 15W-40 oils; the intent is to attempt to run all oils within the specified limits, however, when lower vis grades oils fall out of control limits (either Quality Index, or specs) the test report comment section is to be used to explain the oil pressure deviation. This motion passed 8-0-1. The TMC will issue Information Letters accordingly.

CAT 1M-PC Monitoring - it has been noted that the categories containing the 1M-PC are obsolete or soon will be. The question was raised as to whether it made sense to continue TMC monitoring. After discussion, general consensus was to keep monitoring the test until the industry runs out of parts.

PC-9 Fuel Supply - Availability does not currently appear to be an issue. Jim McCord will check with the supplier regarding viability through 2015.

SCOTE Long Term Parts Availability Through 2015 - the panel addressed this issue in response to a request from EMA/DEOAP. Kevin Daly of CAT mentioned that the only issue he is aware of is related to 1P rings (see below). CAT is planning on supporting the SCOTE tests with parts through 2015 (with the exception of the 1M-PC). Kevin will check on CAT's intent for beyond 2015 and report back. Target time of mid-May is expected so that the SCOTE panel can report back at the June HDEOCP.

1P Rings - are not currently available. CAT expects them by early May.

1P Conrod Bearing - Bill Larch and Andrew Stevens of Lubrizol noted a recent parts change on the 1P conrod bearings (attached file shows a comparison study). The new bearings are Cu/Pb instead of Al. This raised concerns over the possible effect on deposits. Kevin Daly will check to see if the Al bearings are still available.

LTMS TF / TGC - an open forum meeting to unveil the planned LTMS revisions will be held in San Antonio on May 11. All panel members are welcome and are encouraged to attend.

The meeting adjourned at 3:45 Eastern.

Please contact me with any questions or corrections.

Best Regards,

Jeff Clark
Technical Manager
Engineering / Analytical Services

Test Monitoring Center
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From: James McCord [mailto:james.mccord@swri.org]
Sent: Monday, March 08, 2010 12:11 PM
To: 'James McCord'; abi-akar_hind@cat.com; 'Andrew Stevens'; 'Ben Weber'; 'Bob Campbell'; 'Charlie Passut'; daly kevin a@cat.com; jabs@lubrizol.com; james.gutzwiller@infineum.com; james.matasic@lubrizol.com; jaru@chevron.com; Jeff Clark; 'Jim Moritz'; 'John Haegelin'; jomc@lubrizol.com; katinas jade@cat.com; luwt@ripp-sinopec.com; mawc@chevron.com; msut@chevron.com; pat.fetterman@infineum.com; ralph.perna@shell.com; rbuck@tei-net.com; riccardo.conti@exxonmobil.com; 'Stacy Bond'; steven.kennedy@exxonmobil.com; tlcaudill@ashland.com; william.larch@lubrizol.com; wvda@chevron.com; xjc@luberdi.com.cn; 'Zack Bishop'
Subject: SCOTE Conference Call (3/9/10 @ 1400 CT)

Hello SCOTE Panel,

Our teleconference is scheduled for March 9th @ 1400 CT. If there are any additional items that you would like to address then let Jeff or I know and we will add it to the agenda.

1) Low viscgrade affect on singles
2) LTMS/TGC Action Items
3) PC-9 Fuel concerns
4) TMC monitoring of the CAT-1MPC
5) CAT-1P Rings

Dial-in Number: (678) 373-4882
Conference Code: 2259334012

Thanks

James F. McCord

Senior Research Engineer
Southwest Research Institute
Engine Lubricants Research Department
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A Comparison of an Old and New Lot CAT 1P Rod Bearing

Requested by: Bill Larch
Analysis by: W.R. Wetsel
March 9, 2010

Introduction:
A change in the construction of the CAT 1P Single Cylinder Diesel test engine was suspected. An old lot and new lot rob bearing were submitted for comparison of the various alloys used to manufacture the bearings.

Method of Examination:
Alloy composition was determined by Non-standardized Semi-quantitative Energy Dispersive Spectroscopy. Images of the various layers and thickness measurements were obtained on cross-sections using a scanning electron microscope.

A Quick Comparison of the Two Rod Bearings

Old Lot Bearing	New Lot Bearing
Surface	Surface
19 um. thick 89 wt. % Pb 11 Sn	22 um. thick 76 Pb 24 Sn *
1.8 um. thick 26 Cu 27 Sn 33 Al	0.4 um. thick 49 Cu 29 Pb 21 Sn
349 um. thick 82 Al 7 Si 1.3 Cu 3.8 Zn	328 um. thick 79 Cu 15 Pb 4 Sn
Steel Backing	Steel Backing

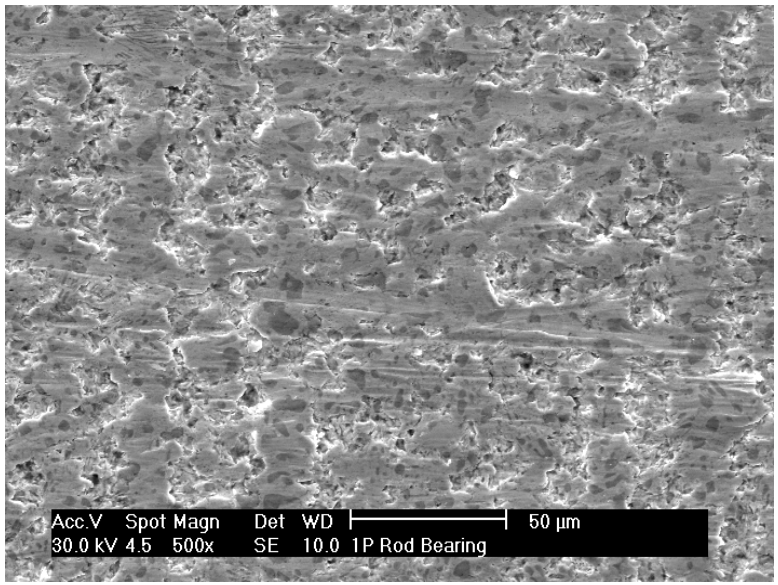
* The outer layer the data comes from the external surface not the cross-section. This eliminates contamination from polishing debris. Elements with small percentages were dropped from this table for simplification.

1P Rod Bearing
New Batch Unused
External Surface

Energy Dispersive Spectroscopy Data

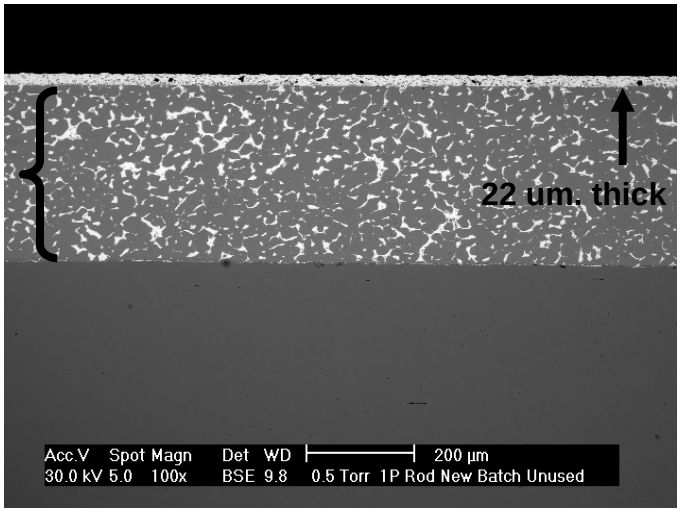
Element	Large Area	Gray Particle	Matrix
Pb	76	10	85
Sn	24	90	15

Wt. %



1P Rod Bearing
New Batch Unused

Liner 328 um. thick

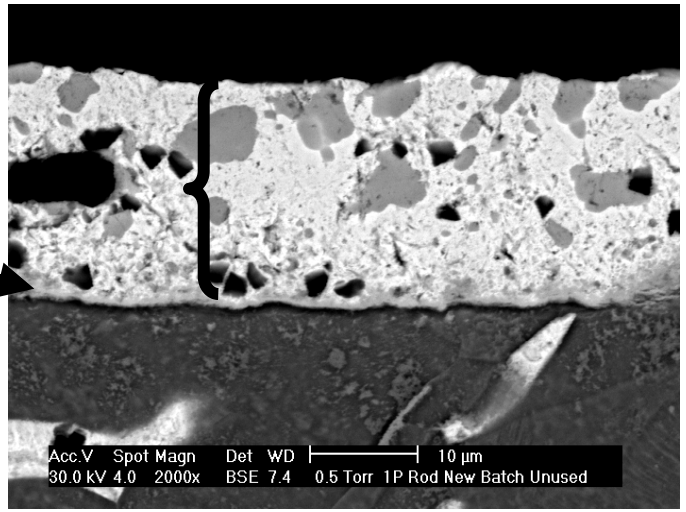


EDS outer layer data

Element	Large area	matrix	gray	black	Bond layer
Pb	73	84	13	80	29
Sn	18	6.7	78	9.5	21
Cu	7.8	7.9	7.7	11	49
Fe	1.2	1.3	1.2	-	1.1

Wt. %

Bonding layer 0.4 um.



Bond layer: 0.4 um. thick
Ni was not detected. Contains Cu, Sn, Pb

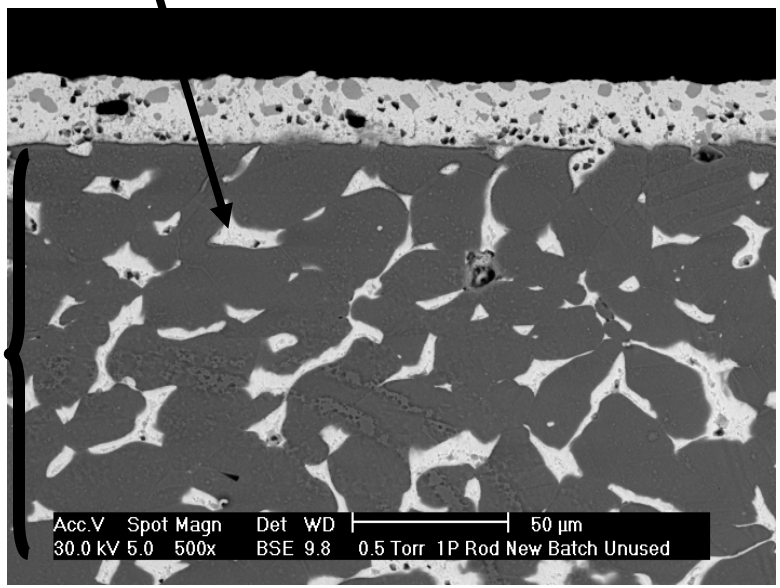
1P Rod Bearing
New Batch Unused

White = Pb particles

EDS on the liner only

Element	Large area	Matrix only	Pb
Pb	15	7	80
Cu	79	87	19
Sn	4.2	4.7	-
Fe	1.1	1.2	1.6

Wt. %

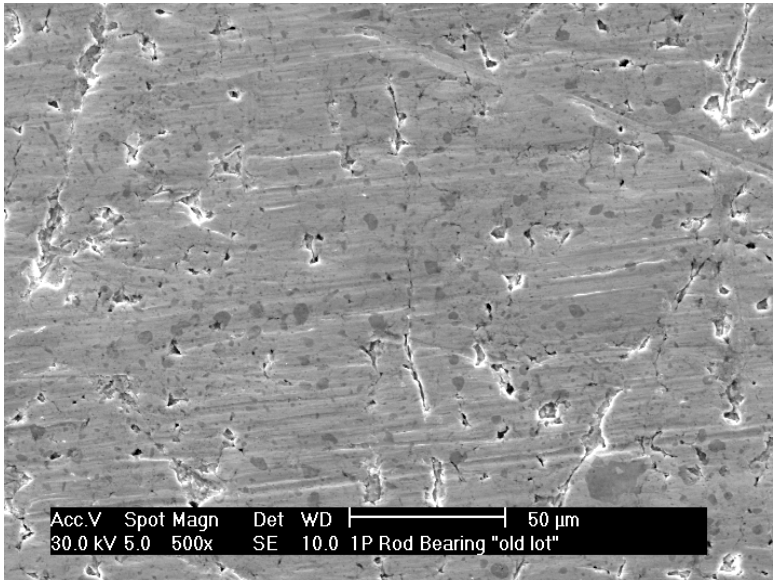


1P Rod Bearing
Old Batch Used

EDS Data on the external surface

Element	Large Area	Matrix	Gray Particle
Pb	89	95	90
Sn	11	5	10

Wt. %

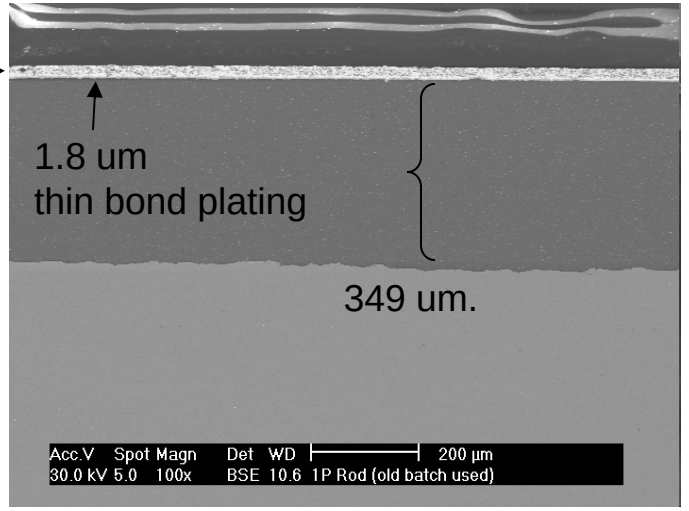


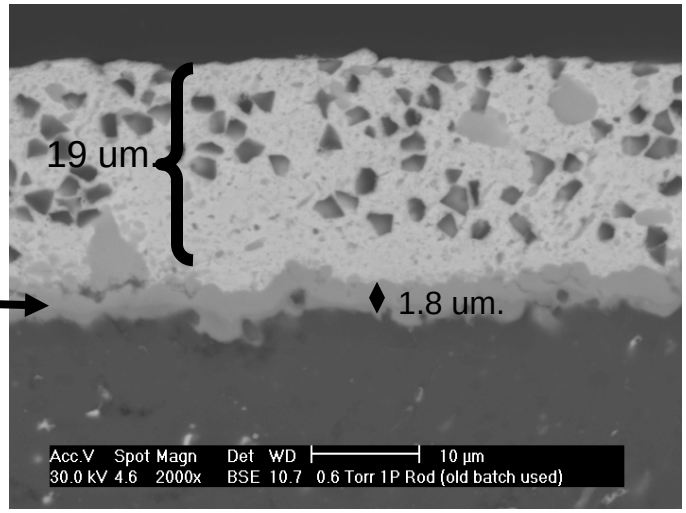
1P Rod Bearing
Old Batch

EDS Data on the outer layer 19 um. thick)

Element	Large Area	Matrix	Gray Particle	Bonding layer
Pb	69	65	15	7.5
Sn	12.5	9.7	62	27
Cu	1.1	2.1	-	26
Al	17	19	19	33
Si	-	1	1.4	1.2
Fe	1.3	2.9	2.9	2.5
Zn	-	-	-	2.5

Wt. %





1P Rod Bearing
Old Batch

Inner layer EDS

Element	Large area	White particle
Al	82	71
Si	7.4	3.9
Fe	5.6	11.8
Cu	1.3	1.6
Zn	3.8	3.1
Pb	-	17
Mg	-	1.3