

Report of Meeting
L-37-1 Surveillance Panel Conference Call
February 9th, 2023

Attendees:

SwRI -	Mueller , Kostan, Charron, Grinfield
Lubrizol -	Venhoff, Slocum , Schaup, Drjla, Ariemma
Afton -	Sangpeal , Bell
Intertek -	Lange , Portell, Gutierrez, Lopez
TMC -	Beck
ExxonMobil -	Banas
BASF -	Goyal , Caridi, Mosher
Dana -	Zyski , Carr
Cummins-Meritor -	LaBond, Carter
Army -	Sattler, Comfort
AAM -	Muransky , Zarins
Shell -	Uy, Schwietzer
Navistar -	Morris
Daimler -	Neal
Fuchs -	Bender
Oranite-	Warren , Jackson
TEI-	Knight

Voting Members in **BOLD**

1.0 Membership Review

Motion #2 → Troy Muranski 1st /2nd Amy Zyski to approve the addition of Rebecca Warden to the voting members of the L37-1 Surveillance Panel. Motion passed unanimously, 11-0-0 (Yes-No-Abstain).

2.0 Meeting minutes Approval

– November 10th, 2022, ASTM Meeting #207

Motion #1 → Nick Schaup 1st /2nd M. Sangpeal to approve the meeting minutes from the November 10th, 2022, ASTM Meeting. Motion passed unanimously, 11-0-0 (Yes-No-Abstain).

3.0 L-37-1 Rating Activity Discussion

- Borderline Gear rating round robin completed (See Appended PowerPoint)
- January Rating workshop discussion of results
- Need more Gleason gears in the rater calibration parts (email vote to come out shortly)

4.0 MnP Coated batch approval process

- Rating workshop to be conducted with existing test parts at SwRi (date TBD)
- Parts are to be investigated by removing the MnP coating

5.0 Gleason issues

- Need to keep trying to contact Gleason to discuss some concerns on final processing/ Pinion tip relief.
- Need to find Second Source for future hardware

6.0 Reference Oil discussion Canadian

- To be further discussed, potential to drop a fluid.

7.0 Old Business

8.0 New Business

9.0 Adjourn

Motion #3 → Nick Schaup 1st /2nd J. Carter to adjourn. Motion passed unanimously, 11-0-0 (Yes-No-Abstain).

Respectfully submitted,

Nick Schaup
L-37-1 Surveillance Panel Chairman



D02.B0.03

L-37-1 Surveillance Panel Meeting

02/08/2023

15:00 pm – 16:00 pm

Nick Schaup

- Call to Order/Agenda review
- Membership Review
- Meeting Minute Approvals
- November 9th, 2022, ASTM Meeting
- L-37-1 LTMS Discussion
 - Borderline Round Robin
- MnP Coated batch approval process
 - Labs progress??
- Reference Oil Targets – Canadian??
- Old Business
 - ?
- New business
- Adjournment

Membership Review

Rob Banas	ExxonMobil
Allen Comfort	US Army
Troy Muransky	AAM
Matt Sangpeal	Afton
Arjun Goyal	BASF
Amy Zyski	Dana
Dylan Beck	TMC
Jason Carter	Cummins - Meritor
Anthony Lange	Intertek
Nick Schaup	Lubrizol
Caroline Mueller	SwRI
Khaled Zreik	GM

Total Voting Members = 12

Meeting Minutes Approval

- November 9th , 2022, ASTM Meeting



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LRI 208 Surveillance Panel Meetings L-37-1 Rating Activity

February 8, 2022

Overview

- During the August panel meeting, there was discussion about Lab B potentially be consistently milder than other labs for RIPP.
- As an investigation a L-37-1 reference test that failed for RIPP at Lab A was sent to lab B to be rated.
- These results were reviewed in November and ratings ranged from 6-9 for RIPP.
- The part was then sent around to the rest of the industry raters for a round robin exercise.



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Rating Comparison – From November

		Pinion Rating (Run#05-0329)		
Rater ID	Lab	WEAR	RIDG	RIPP
43	LZ	8	10	9
44	LZ	8	10	8
* New Rater in Training	LZ	8	10	10
38	SR	7	9	6

Lab B did rate the parts milder than the original rating at Lab B



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Rating Comparison – Round Robin Exercise

Pinion Rating (SR Run#05-0329)						
Rater ID	Lab	WEAR	RIDG	RIPP	Spit	
43	LZ	8	10	9		
44	LZ	8	10	8		
* New Rater in Training	LZ	8	10	10		
Original Rating	38	SR	7	9	6	9.9
22	EG	7	8	7		9.9
37	EG	8	9	8		9.9
42	EG	8	8	9		9.9
45	EV	7	9	7		9.9
48	EV	8	9	7		9.9



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Rating Workshop Exercises

- Additional Gleason reference run pinions were brought to the January 2023 rating workshop



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Rating Workshop Exercises

Pinion Ratings (156600-L371, LZ Run 239) MnP Coated						
	Rater ID	Lab	WEAR	RIDG	RIPP	Spit
Original Rating	44	LZ	8	10	10	9.9
	36	LZ	8	9	9	9.5
	38	SR	7	9	8	8
	10	SR	7	10	7	9.5
	22	EG	8	10	9	9.9
	37	EG	7	10	9	8
	42	EG	8	9	8	9.5
	48	EV	8	9	8	9.5

The raters discussed and reviewed this part as a group.

Consensus was that this part did not exhibit ridging, but instead the MnP coating was starting to be removed by the running of the test.

Next Step: See if LZ would be willing to provide pictures of this part as a training tool for raters to reference.



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Rating Workshop Exercises

Pinion Ratings (129002-L371, EV Run 378) MnP Coated						
Rater ID	Lab	WEAR	RIDG	RIPP	Spit	
36	LZ	7	5	6	9.7	
38	SR	6	5	6	9.6	
10	SR	6	4	6	9.7	
22	EG	7	4	5	9.7	
37	EG	6	5	5	9.7	
42	EG	7	5	5	9.8	
Original Rating	45	EV	6	5	7	9.7
	48	EV	7	7	8	9.0

The raters discussed and reviewed this part as a group.

A lot less disagreement with this part.

Next Steps: I would like to continue bringing Gleason hardware reference parts to rating workshops. I believe this led to good discussion and the raters could convene on what is being seen on more recent reference tests.



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MnP Coated batch approval process

- Met on the 19th of December
- Each lab to run 134-1 twice and 155-1 twice
- Lubrizol to run 1 of each (134-1,155-1,152-2)
- Progress?



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L-37-1 MnP Coated 2022 Hardware Approval

February 8, 2023

Review Data From December Conference Call First



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134-1 Approval Matrix

testkey	ltmslab	val	ind	ltmsdate	CHART	RIDG	RIPP	SPIT	WEAR	TESTHARD	BATCH	PINBAT	RINGBAT
149918-L371	D	NI	134-1	20220909	N	5	8	9.9	6	MNP COATED	04-2021	7048181	7048197
145421-L371	A	NI	134-1	20221104	N	5	6	9.9	6	MNP COATED	04-2021	7048189	7048204
154666-L371	G	NI	134-1	20221118	N	6	6	9.9	7	MNP COATED	04-2021	7048129	7049130
					Mean	5.3	6.7	9.9	6.3				
					Std	0.58	1.15	0.00	0.58				
					Coated Targets								
					2014 HW								
					<i>Target Mean</i>	<i>6.1</i>	<i>7.4</i>	<i>9.9</i>	<i>6.8</i>	N Size = 12			
					<i>Target Std.</i>	<i>2.4</i>	<i>1.6</i>	<i>0.1</i>	<i>0.9</i>				



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152-2 Approval Matrix

testkey	ltmslab	val	ind	ltmsdate	CHART	RIDG	RIPP	SPIT	WEAR	TESTHARD	BATCH	PINBAT	RINGBAT
149926-L371	D	NI	152-2	20220825	N	9	8	9.9	8	MNP COATED	04-2021	7048181	7048197
161097-L371	A	NI	152-2	20221102	N	9	8	9.9	7	MNP COATED	04-2021	7048189	7048204
154669-L371	G	NI	152-2	20221119	N	9	7	9.9	8	MNP COATED	04-2021	7048129	7048130
					Mean	9.0	7.7	9.9	7.7				
					Std	0.00	0.58	0.00	0.58				
					Coated Targets	<i>Target Mean</i>	<i>9.7</i>	<i>9.3</i>	<i>9.7</i>	<i>8.2</i>	N Size = 9		
					2014 HW	<i>Target Std.</i>	<i>0.5</i>	<i>0.5</i>	<i>0.6</i>	<i>0.7</i>			



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155-1 Approval Matrix

testkey	ltmslab	val	ind	ltmsdate	CHART	RIDG	RIPP	SPIT	WEAR	TESTHARD	BATCH	PINBAT	RINGBAT
141941-L371	D	NI	155-1	20220902	N	9	8	9.9	8	MNP COATED	04-2021	7048181	7048197
145432-L371	A	NI	155-1	20221101	N	9	8	9.9	7	MNP COATED	04-2021	7048189	7048204
166132-L371	G	NI	155-1	20221122	N	10	7	9.9	8	MNP COATED	04-2021	7048129	7040636
					Mean	9.3	7.7	9.9	7.7				
					Std	0.58	0.58	0.00	0.58				
					Coated Targets	Target Mean	9.3	8.7	9.9	7.9	N Size = 9		
					2014 HW	Target Std.	1	0.7	0	0.8			



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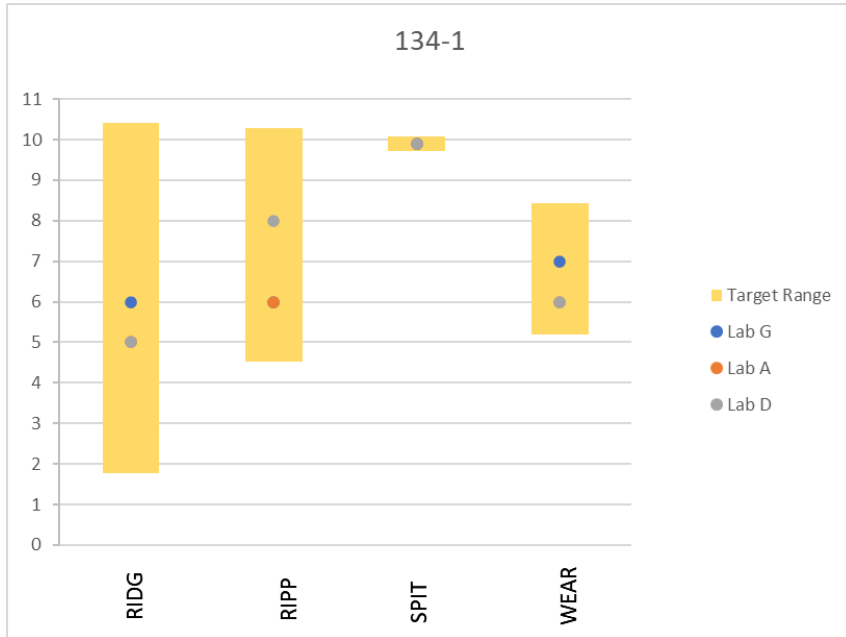
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Itemslab	ind	CHART	RIDG	RIPP	SPIT	WEAR	TESTHARD
D	134-1	N	5	8	9.9	6	MNP COATED
A	134-1	N	5	6	9.9	6	MNP COATED
G	134-1	N	6	6	9.9	7	MNP COATED
			Mean	5.3	6.7	9.9	6.3
			Std	0.58	1.15	0.00	0.58

		RIDG	RIPP	SPIT	WEAR
Coated Targets	Target Mean	6.1	7.4	9.9	6.8
2014 HW	Target Std.	2.4	1.6	0.1	0.9
	Upper Limit	10.42	10.28	10.08	8.42
N=12	Lower Limit	1.78	4.52	9.72	5.18



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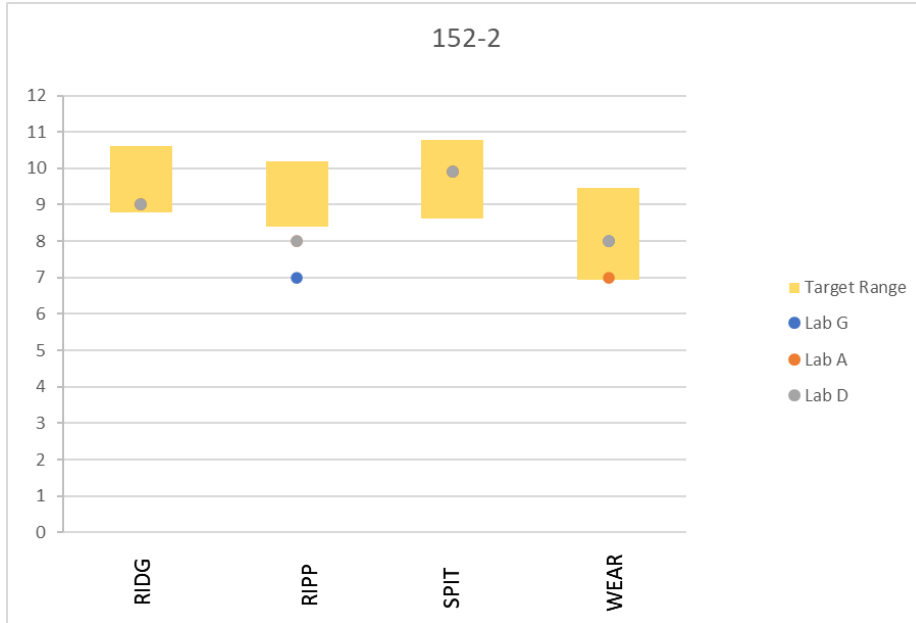
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ltmslab	ind	CHART	RIDG	RIPP	SPIT	WEAR	TESTHARD
D	152-2	N	9	8	9.9	8	MNP COATED
A	152-2	N	9	8	9.9	7	MNP COATED
G	152-2	N	9	7	9.9	8	MNP COATED
		Mean	9.0	7.7	9.9	7.7	
		Std	0.00	0.58	0.00	0.58	

		RIDG	RIPP	SPIT	WEAR
Coated Targets	Target Mean	9.7	9.3	9.7	8.2
2014 HW	Target Std.	0.5	0.5	0.6	0.7
	Upper Limit	10.6	10.2	10.78	9.46
N=9	Lower Limit	8.8	8.4	8.62	6.94



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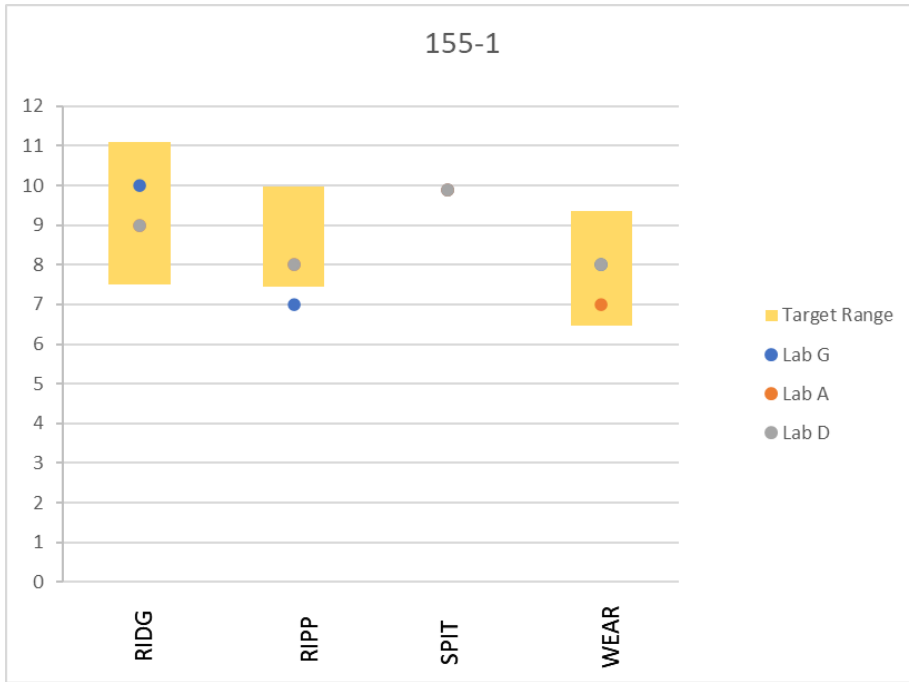
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Itmslab	Ind	CHART	RIDG	RIPP	SPIT	WEAR	TESTHARD
D	155-1	N	9	8	9.9	8	MNP COATED
A	155-1	N	9	8	9.9	7	MNP COATED
G	155-1	N	10	7	9.9	8	MNP COATED
		Mean	9.3	7.7	9.9	7.7	
		Std	0.58	0.58	0.00	0.58	

		RIDG	RIPP	SPIT	WEAR
Coated Targets	Target Mean	9.3	8.7	9.9	7.9
2014 HW	Target Std.	1	0.7	0	0.8
	Upper Limit	11.1	9.96	9.9	9.34
N=9	Lower Limit	7.5	7.44	9.9	6.46



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December Meeting Summary

- Concerns over Rippling outside of the current target range for oils 152-2 and 155-1
- Surveillance panel decided to run additional runs at each lab
- Labs A,D, & G run two runs on 134-1 and two runs on 155-1
- Lab B will run one run on each of the three reference oils



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134-1 Updated Approval Matrix

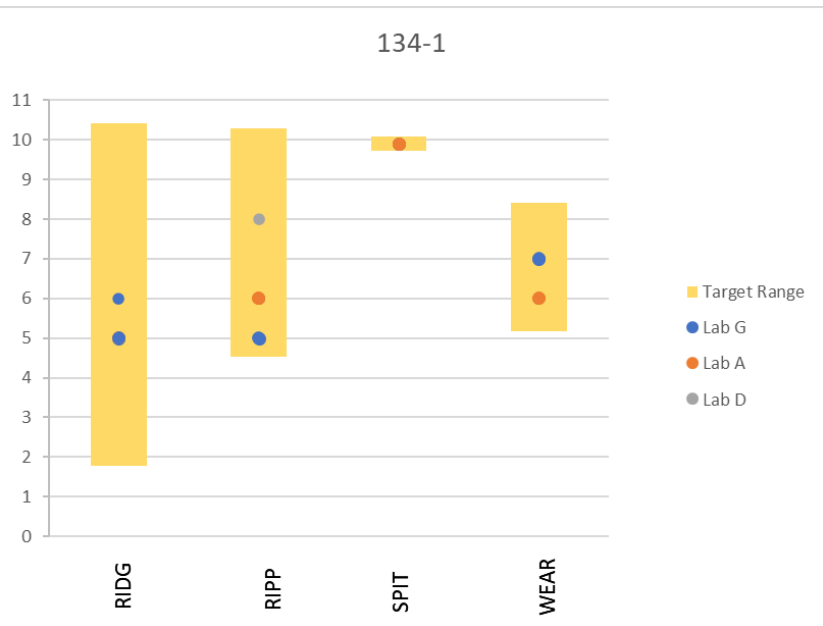
testkey	lab	ltmslab	val	ind	ltmsdate	dtcalexp	CHART	com1	com2	com3	com4	RIDG	RIPP	SPIT	WEAR	TESTHARD
149918-L371	EV	D	NI	134-1	20220909	N/A	N	COATED	HW	APPROVAL		5	8	9.9	6	MNP COATED
145421-L371	SR	A	NI	134-1	20221104	N/A	N	HW	APPROVAL			5	6	9.9	6	MNP COATED
154666-L371	EG	G	NI	134-1	20221118	N/A	N	HW	APPROVAL			6	6	9.9	7	MNP COATED
166124-L371	EG	G	NI	134-1	20230127	N/A	N	HW	APPROVAL			5	5	9.9	7	MNP COATED
145423-L371	SR	A	NI	134-1	20230107	N/A	N	HW	APPROVAL			5	6	9.9	6	MNP COATED
145422-L371	SR	A	NI	134-1	20230106	N/A	N	HW	APPROVAL			5	6	9.9	6	MNP COATED
166125-L371	EG	G	NI	134-1	20230131	N/A	N	HW	APPROVAL			5	5		7	MNP COATED
								Mean				5.1	6.0	9.9	6.4	
								Std				0.38	1.00	0.00	0.53	
												RIDG	RIPP	SPIT	WEAR	
										Coated Targets	Target Mean	6.1	7.4	9.9	6.8	N Size =12
										2014 HW	Target Std.	2.4	1.6	0.1	0.9	

152-2 Updated Approval Matrix

testkey	lab	ltmslab	val	ind	ltmsdate	dtcalexp	CHART	com1	com2	com3	com4	RIDG	RIPP	SPIT	WEAR	TESTHARD
149926-L371	EV	D	NI	152-2	20220825	N/A	N	COATED	HW	APPROVAL		9	8	9.9	8	MNP COATED
161097-L371	SR	A	NI	152-2	20221102	N/A	N	HW	APPROVAL			9	8	9.9	7	MNP COATED
154669-L371	EG	G	NI	152-2	20221119	N/A	N	HW	APPROVAL			9	7	9.9	8	MNP COATED
156588-L371	EV	D	NI	152-2	20221229	N/A	N	HW	APPROVAL			9	7	9.9	8	MNP COATED
154669-L371	EG	G	NI	152-2	20221119	N/A	N	HW	APPROVAL			9	7	9.9	8	MNP COATED
							Mean					Mean	9.0	7.4	9.9	7.8
							Std					Std	0.00	0.55	0.00	0.45
												RIDG	RIPP	SPIT	WEAR	
										Coated Targets	Target Mean	9.7	9.3	9.7	8.2	N Size =9
										2014 HW	Target Std.	0.5	0.5	0.6	0.7	

155-1 Updated Approval Matrix

testkey	lab	ltmslab	val	ind	ltmsdate	dtcalexp	CHART	com1	com2	com3	com4	RIDG	RIPP	SPIT	WEAR	TESTHARD
141941-L371	EV	D	NI	155-1	20220902	N/A	N	HW	APPROVAL			9	8	9.9	8	MNP COATED
145432-L371	SR	A	NI	155-1	20221101	N/A	N	HW	APPROVAL			9	8	9.9	7	MNP COATED
166132-L371	EG	G	NI	155-1	20221122	N/A	N	HW	APPROVAL			10	7	9.9	8	MNP COATED
166133-L371	EG	G	NI	155-1	20230128	N/A	N	HW	APPROVAL			9	9	9.9	7	MNP COATED
161103-L371	SR	A	NI	155-1	20230110	N/A	N	HW	APPROVAL			9	8	9.9	7	MNP COATED
141942-L371	EV	D	NI	155-1	20221222	N/A	N	HW	APPROVAL			9	7	9.9	8	MNP COATED
166132-L371	EG	G	NI	155-1	20221122	N/A	N	HW	APPROVAL			10	7	9.9	8	MNP COATED
176129-L371	SR	A	NI	155-1	20230201	N/A	N	HW	APPROVAL			9	8	9.9	7	MNP COATED
177223-L371	EG	G	NI	155-1	20230201	N/A	N	HW	APPROVAL			8	8	9.9	8	MNP COATED
							Mean					Mean	9.1	7.8	9.9	7.6
							Std					Std	0.60	0.67	0.00	0.53
												RIDG	RIPP	SPIT	WEAR	
										Coated Targets	Target Mean	9.3	8.7	9.9	7.9	N Size =9
										2014 HW	Target Std.	1	0.7	0	0.8	



testkey	ltmslab	CHART	RIDG	RIPP	SPIT	WEAR	TESTHARD
149918-L371	D	N	5	8	9.9	6	MNP COATED
145421-L371	A	N	5	6	9.9	6	MNP COATED
154666-L371	G	N	6	6	9.9	7	MNP COATED
166124-L371	G	N	5	5	9.9	7	MNP COATED
145423-L371	A	N	5	6	9.9	6	MNP COATED
145422-L371	A	N	5	6	9.9	6	MNP COATED
166125-L371	G	N	5	5		7	MNP COATED
		Mean	5.1	6.0	9.9	6.4	
		Std	0.38	1.00	0.00	0.53	

		RIDG	RIPP	SPIT	WEAR
Coated Targets	Target Mean	6.1	7.4	9.9	6.8
2014 HW	Target Std.	2.4	1.6	0.1	0.9
	Upper Limit	10.42	10.28	10.08	8.42
N=12	Lower Limit	1.78	4.52	9.72	5.18



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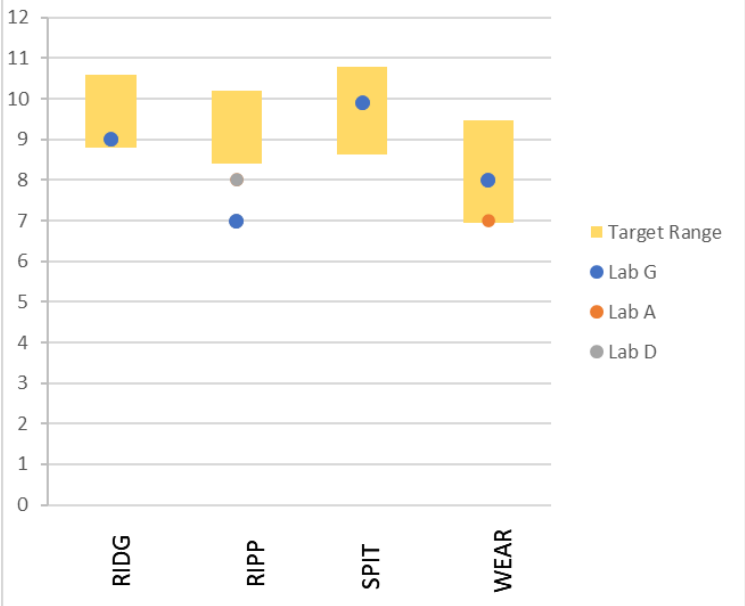
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152-2



testkey	lmslab	ind	CHART	RIDG	RIPP	SPIT	WEAR	TESTHARD
149926-L371	D	152-2	N	9	8	9.9	8	MNP COATED
161097-L371	A	152-2	N	9	8	9.9	7	MNP COATED
154669-L371	G	152-2	N	9	7	9.9	8	MNP COATED
156588-L371	D	152-2	N	9	7	9.9	8	MNP COATED
154669-L371	G	152-2	N	9	7	9.9	8	MNP COATED
			Mean	9.0	7.4	9.9	7.8	
			Std	0.00	0.55	0.00	0.45	

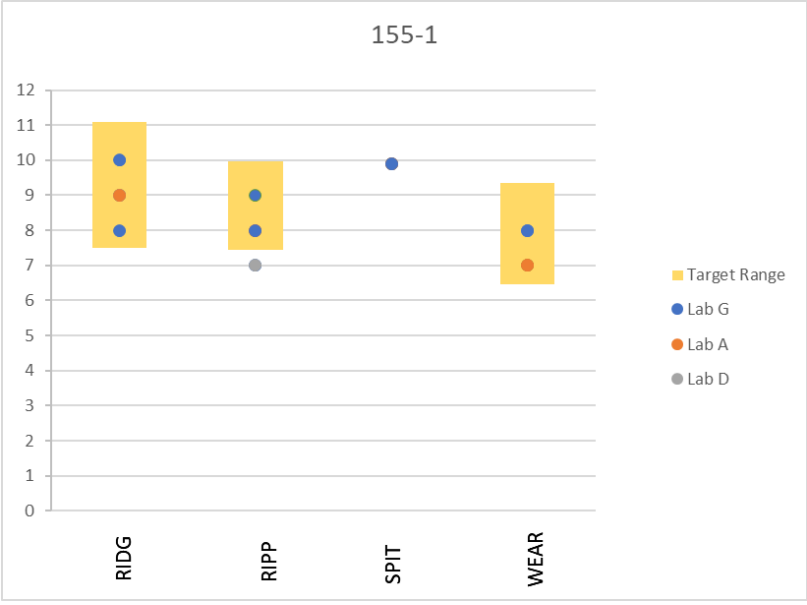
		RIDG	RIPP	SPIT	WEAR
Coated Targets	Target Mean	9.7	9.3	9.7	8.2
2014 HW	Target Std.	0.5	0.5	0.6	0.7
	Upper Limit	10.6	10.2	10.78	9.46
N=9	Lower Limit	8.8	8.4	8.62	6.94



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testkey	ltmslab	ind	CHART	RIDG	RIPP	SPIT	WEAR	TESTHARD
141941-L371	D	155-1	N	9	8	9.9	8	MNP COATED
145432-L371	A	155-1	N	9	8	9.9	7	MNP COATED
166132-L371	G	155-1	N	10	7	9.9	8	MNP COATED
166133-L371	G	155-1	N	9	9	9.9	7	MNP COATED
161103-L371	A	155-1	N	9	8	9.9	7	MNP COATED
141942-L371	D	155-1	N	9	7	9.9	8	MNP COATED
166132-L371	G	155-1	N	10	7	9.9	8	MNP COATED
176129-L371	A	155-1	N	9	8	9.9	7	MNP COATED
177223-L371	G	155-1	N	8	8	9.9	8	MNP COATED
			Mean	9.1	7.8	9.9	7.6	
			Std	0.60	0.67	0.00	0.53	

		RIDG	RIPP	SPIT	WEAR
Coated Targets	Target Mean	9.3	8.7	9.9	7.9
2014 HW	Target Std.	1	0.7	0	0.8
	Upper Limit	11.1	9.96	9.9	9.34
N=9	Lower Limit	7.5	7.44	9.9	6.46



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Test Monitoring Center

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Reference Oil Targets - Canadian

- Discussion on dropping 152-2 as a reference oil



Old Business

- ?

New Business

Adjourn