



Address 100 Barr Harbor Drive
PO Box C700
W. Conshohocken, PA
19428-2959 | USA

Phone 610.832.9500
Fax 610.832.9555
e-mail service@astm.org
Web www.astm.org

Committee D02 on PETROLEUM PRODUCTS AND LUBRICANTS

Chairman: W. JAMES BOVER, ExxonMobil Biomedical Sciences, 1545 Route 22 East, PO Box 971, Annandale, NJ 08801-0971, (908) 730-1048, Fax: (908) 730-1151, e-mail: w.j.bover@exxonmobil.com
First Vice Chairman: KENNETH O. HENDERSON, Cannon Instrument Co., 30 Doe Dr., Port Matilda, PA 16870, (814) 353-8000, Fax: (814) 353-8007, e-mail: kenohenderson@worldnet.att.net
Second Vice Chairman: SALVATORE J. RAND, 1299 Middle Gulf Dr., Sanibel Island, FL 33957, (239) 481-4729, Fax: (239) 481-4729, e-mail: salrand@earthlink.net
Secretary: MICHAEL A. COLLIER, Petroleum Analyzer Co. LP, PO Box 206, Wilmington, IL 60481, (815) 458-0216, Fax: (815) 458-0217, e-mail: macvarlen@aol.com
Assistant Secretary: JANET L. LANE, ExxonMobil Research & Engineering, 600 Billingsport Rd., PO Box 480, Paulsboro, NJ 08066-0480, (856) 224-3302, Fax: (856) 224-3616, e-mail: janet.l.lane@exxonmobil.com
Staff Manager: DAVID R. BRADLEY, (610) 832-9681, Fax: (610) 832-9668, e-mail: dbradley@astm.org

March 18, 2005

Reply to:

Donald T. Bartlett

The Lubrizol Corporation

29400 Lakeland Blvd.

Wickliffe, OH 44092

(440) 347-2388

(440) 347-2878 (FAX)

ASTM D02.B0.03 L-37 Surveillance Panel

Members and Guests:

Attached for your review and comment are the unconfirmed minutes of the March 9, 2005 L-37 Surveillance Panel teleconference call. Please direct any corrections or comments to my attention.

Sincerely,

Donald T. Bartlett, Chairman

L-37 Surveillance Panel

Attachments

**Report of Conference Call
L-37 Surveillance Panel
March 9th, 2005, 2:00 p.m. EST**

The teleconference meeting was brought to order at 2:00 p.m. EST.

I. Attendees:

ASTM TMC:	Don Lind	Lubrizol Corp:	Jerry Gropp
Ethyl Corp:	Cory Koglin	DA Stuart:	Paula Vettel
Lubrizol Corp:	Don Bartlett	Dana Corp:	Ken Okamuro
PARC:	Dale Smith	SwRI:	Brian Koehler

II. Agenda:

- o General overview and discussion of action items assigned from the February 2nd, 2005 SP meeting.
 - Phase 4 testing update/review on lubrited hardware L247/T758A testing exchange between Lubrizol, Parc, and Afton on TMC 151-3.
 - Define any actions to address over the next two weeks before the panel meeting.
- o 2005 non-lubrited hardware status, cost, and industry binding purchase order requirements.

III. Action Items:

- Lab B will submit corrected Rippling distress ratings from Phase 2 and 3 matrix testing on TMC 151-3.
- Labs agreed to bring a firm 2005 non-lubrited hardware count to the April 6th SP meeting and binding purchase orders are required NLT April 15th, 2005

IV. Motions

- To better look at stand or hardware differences, Mr. Koglin motioned, second by Mr. Smith that:
 - We conduct 4 more standard L-37 tests on TMC 128-1 and use the following hardware exchange. This would be identified as Phase 5:
 - Lab E to conduct 2 more runs on TMC 128-1. Hardware use and exchange is: 1 on lab B hardware, 1 on lab D hardware. Lab E is not able to use the same stand that Phases 2 and 3 runs were conducted in (stand 1). Instead, lab E will use their other qualified stand (stand 2, was used for Phase 4 also).
 - Lab E to send 1 axle each to labs D and B with Labs D & B running 1 standard test each on TMC 128-1. Labs D and B confirmed that they will be using the same stands (3A and 191, respectively) as was used in Phases 2, 3, and 4 testing.
 - Tests to be completed by the end of March.
 - Phase 5 should confirm if there is a lab, hardware, or oil interaction.
 - Data will be reviewed at the April 6th SP meeting.

V. Summary of Panel Discussion, Consensus and Motions:

Further testing on the Lubrited L247/T758A hardware batch was previously put on hold until the panel addressed the 2004 non-lubrited V1L351/P4T771 hardware industry needs. That action is now complete.

The chairman provided the following summaries on Lubrited L247/T758A hardware batch:

- **Attachment # 1:** is a summary of all testing (Phases 2, 3, and 4) to date. Remember, Phase 1 matrix testing results were discarded. The Dana Glasgow facility hardware tempering process used for the initial 'pilot batch' (Phase 1) was different than the tempering process used for the final production run of the remaining hardware. Just to recap, a motion was made from the 02/02/05 SP:
 - That we conduct 5 more standard L-37 tests on TMC 151-3 and use the following hardware exchange. This would become Phase 4:
 - Lab B to conduct 3 more runs on TMC 151-3. Hardware use and exchange is: 1 on lab B hardware, 1 on lab D hardware, and 1 on Lab E hardware.
 - Lab B to send 1 axle each to labs D and E with Lab D & E running 1 standard test each on TMC 151-3.
 - A teleconference call will be scheduled to discuss/review.
 - Tests were to be completed by the end of February.

- **Attachment # 2:** is the January 2004 Rating Task Force spreadsheet that was taken from the TMC website, further updated by the chairman, and sent out to the panel to review for this call. Remember, the raters, at an earlier request of the SP, were asked to rate all the pinions only from Phase 1 and 2 matrix.

- Comments/discussions shared from Phase 1, 2, and 3 testing on TMC 151-3:
 - With respect to Rippling distress only, Lab B learned during the January 2004 workshop rater discussions that lab B raters were allowing 'trace pitting' and the 'color intensity' of the pinion on TMC fluid 151-3 only influence their ratings to the severe side. See the workshop data on CMIR #'s 49044 and 46085 from lab B. The panel agreed that this was a rating issue, not a lab or possible hardware issue.

 - Since all of the data is used to set the targets/bands and to be technically correct, lab B volunteered (with SP support) to change/re-report their original reported ratings for Rippling distress on CMIR #'s 49044 (Phase 2, from 6 to an 8), 49047(Phase 3, from 7 to an 8), and 50345 (Phase 3, from 7 to an 8). Lab B reported that CMIR 46085 pinion (Phase 2, rating of 7) is no longer available (went to Dana for destructive analysis). Ken confirmed that the pinion pieces were no longer able to be retrieved). The original rater who rated the pinion could not review it again (he did not participate in the 2004 January workshop). Therefore, it was appropriately deemed lab B would re-report the CMIR as 'non-interpretable' so that the results would not be included in the target setting data.

 - Mr. Lind stated that he felt this is another excellent example why, for each and every new hardware batch, when differences across the labs are apparent, that the pinions and raters should come together at some type of workshop to discuss/confirm before the appropriate targets/bands are set. Also, the new hardware is generally not yet in the current L-37 RCMS calibration cycle. If we are looking for possible application of hardware correction factors, it is critical that we have the most correct data set. If the target mean is wrong, the laboratories could pay the price with more unacceptable references.

- Comments/discussions shared from Phase 1 and 2 testing on TMC 128-1:
 - The SP discussed the differences seen with Lab E data on Rippling distress versus the other labs. The workshop data confirmed (see CMIR #'s 49196 and 46790) that the rippling numbers of 4 and 5 appear to be real. Mr. Smith reported that they even took to pinions to an LRI and had other raters compare, giving the same numbers.

 - Mr. Lind commented that, in this case, this is not a rating issue, rather, a possible lab/stand issue based on the results from the other two labs.

- After further discussion, Mr. Koglin motioned, second by Mr. Smith, that:
 - We conduct 4 more standard L-37 tests on TMC 128-1 and use the following hardware exchange. This would be identified as phase 5:
 - Lab E to conduct 2 more runs on TMC 128-1. Hardware use and exchange is: 1 on lab B hardware, 1 on lab D hardware. Lab E is not able to use the same stand that Phases 2 and 3 runs were conducted in (stand 1). Instead, lab E will use their other qualified stand (stand 2, was used for Phase 4 also).
 - Lab E to send 1 axle each to labs D and B with Labs D & B running 1 standard test each on TMC 128-1. Labs D and B confirmed that they will be using the same stands (3A and 191, respectively) as was used in Phases 2, 3, and 4 testing.
 - Tests to be completed by the end of March.
 - Phase 5 should confirm if there is a lab, hardware, or oil interaction.
 - Data will be reviewed at the April 6th SP meeting.
 - The motion carried with 4 votes in favor, 3 abstentions, and 0 negatives.

- In an other action item, the labs reported the following information on current Lubrited hardware inventories:

	<u>All Previously Approved Lubrited Hardware</u>	<u>Unapproved Lubrited L247/T758A Hardware</u>
PARC:	< 20	< 100
Afton	< 100	< 50
Lubrizol	< 75	< 200
SRI	< 80	0

- Further discussion on qualification of the hardware batch L247/T758A:
 - Since the hardware batch is small, general consensus was that we should consider approving the hardware batch using only TMC 128-1 and TMC 151-3 for determinations of possible hardware correction factors and targets/bands for referencing purposes. We would not perform any further Standard TMC 152 and 153 testing.
 - As for approving the hardware with low temperature testing, the following summarizes comments received:
 - Some felt that a minimum number of low temperature tests, possibly one test each on TMC 152 and 153 at each of the three labs who purchased the hardware would be most appropriate. This would provide a sanity check and the hardware would possibly be approved for low temperature testing.

- Mr. Koehler commented that there is already one lubrited batch (V1L686/P4L626A - '99 batch) with a 'specific' correction factor that was 'officially approved' for low temperature testing. Also, the lubrited V1L303/P4L514A hardware ('97 batch) is 'unofficially' approved (it has the LRI pitting/spalling waiver). One could approach the discussion from the point of view that it is 'grandfathered' in because it was approved before all of the low temperature issues.
- There were concerns expressed that both of the above mentioned batches had issues that make the hardware 'less than desirable' for both standard and low temperature testing.
- Two labs commented that we should not run any more tests on this hardware because the batch is so small.
- The chairman indicated that this item would be placed on the agenda for further discussion at the April meeting.

Mr. Okamuro/Dana Comments for the 2005 Non-lubrited Hardware Order:

Mr. Okamuro reported that he will be retiring from Dana at the end of June 2005. We do not have an ASTM replacement representative for Dana at this time. Mr. Okamuro believes that an individual will be named and both plan to attend the June 2005 SP meeting for introduction. The transfer of equipment (Dana 60 and 44 models) to Lugoff S. C is still on schedule for April. Timing for a 2005-year end or January-2006 receipt of hardware for matrix testing is still possible.

Mr. Ramsey reports that the pricing for the Dana Model 60-2005 hardware will be \$ 883.00 each (inclusive of the steel surcharge). For the Dana Model 44-2005 hardware the cost will be \$ 712.00 each and also includes the steel surcharge.

For industry calculation of L-37 non-lubrited hardware needs for the binding industry purchase orders, the panel agreed that:

- Binding purchase orders for the model 60 non-lubrited hardware are required by April 15th, 2005. Labs agreed to come to the April 6th SP meeting with firm numbers.
- The next non-lubrited hardware order is to be placed by April, 2007.
- Labs agreed that one pallet of 16 axles should be set aside for 2005-hardware approval matrix testing.

The teleconference was adjourned at 3:27 p.m.

Respectfully submitted,



Donald T. Bartlett,
L-37 Surveillance Panel Chairman

L247/T758A Lubrified Hardware
March 2005

CMIR	Lab	STD	Run	Oil	Pinbat	Ringbat	DTCOMP	Pwear	Pridg	Pripp	Pspit	Rwear	Rridg	Rripp	Rspit	lpcrat	fpccrat	GEAR	PHASE
49494	D	3A	49	128-1	L247	T758A	20031118	5	7	7	9.3	7	9	9	10	2	1		PHASE2
49495	D	3A	51	128-1	L247	T758A	20031121	6	7	8	9.5	8	7	9	9.9	3	0		PHASE2
49496	D	3A	84	128-1	L247	T758A	20040207	5	7	7	9.6	8	10	10	10	2	-1		PHASE3
49497	D	3A	99	128-1	L247	T758A	20040228	6	8	7	9	8	10	10	10	2	0		PHASE3
46776	B	191	1884	128-1	L247	T758A	20031107	6	7	8	9	7	8	9	9.8	2	-1		PHASE2
46777	B	191	1885	128-1	L247	T758A	20031108	6	8	8	8	7	9	9	9.9	2	0		PHASE2
46933	B	191	1906	128-1	L247	T758A	20040312	6	7	8	9	7	8	9	9.8	2	0		PHASE3
46934	B	191	1908	128-1	L247	T758A	20040315	6	8	8	9	8	9	9	10	2	1		PHASE3
49195	E	1	787	128-1	L247	T758A	20031105	6	8	5	9	7	9	9	8	2	0		PHASE2
49196	E	1	788	128-1	L247	T758A	20031106	6	8	4	8	7	9	9	9.9	2	1		PHASE2
50078	E	1	807	128-1	L247	T758A	20040327	6	8	5	7	7	9	9	9.8	2	0		PHASE3
50079	E	1	808	128-1	L247	T758A	20040328	6	8	4	8	7	9	9	9.9	2	0		PHASE3
49500	D	3A	53	151-3	L247	T758A	20031125	6	8	9	9.9	9	10	10	10	1	3		PHASE2
49501	D	3A	55	151-3	L247	T758A	20031127	5	8	9	8	8	9	9	9.9	3	1		PHASE2
50178	D	3A	85	151-3	L247	T758A	20040208	6	9	9	9.8	10	10	10	10	2	0		PHASE3
50179	D	3A	95	151-3	L247	T758A	20040222	5	9	9	9.9	8	10	10	10	2	0		PHASE3
50338	D	3A	285	151-3	L247	T758A	20050220	6	9	9	9.7	9	10	9	10	2	1	LZGEAR	PHASE4
46085	B	191	1883	151-3	L247	T758A	20031106	6	9	7	9.7	8	10	9	9.9	2	0		PHASE2
49044	B	191	1886	151-3	L247	T758A	20031110	5	9	6	9.4	7	10	8	9.7	2	1		PHASE2
49047	B	191	1910	151-3	L247	T758A	20040326	6	8	7	9.6	8	9	8	9.4	2	-1		PHASE3
50345	B	191	1911	151-3	L247	T758A	20040329	6	9	7	9	8	9	8	9.9	2	0		PHASE3
53450	B	191	2087	151-3	L247	T758A	20050208	6	9	8	8	7	10	8	9.5	2	0	LZGEAR	PHASE4
53451	B	191	2088	151-3	L247	T758A	20050210	6	9	9	9.8	8	10	9	10	2	0	PKGEAR	PHASE4
51850	B	191	2090	151-3	L247	T758A	20050212	6	9	7	8	7	10	7	9.5	2	0	EVGEAR	PHASE4
46789	E	1	789	151-3	L247	T758A	20031107	6	9	9	9.7	7	9	9	9.9	2	0		PHASE2
49199	E	1	790	151-3	L247	T758A	20031111	6	9	9	9.8	7	9	9	9.9	2	0		PHASE2
49200	E	1	805	151-3	L247	T758A	20040325	6	7	9	9.5	7	9	9	9.9	2	0		PHASE3
49201	E	1	806	151-3	L247	T758A	20040326	6	9	9	9.4	7	9	9	9.8	2	0		PHASE3
50085	E	2	84	151-3	L247	T758A	20050224	6	9	8	9.5	7	9	9	9.9	2	0	LZGEAR	PHASE4

Attachment	<u>1</u>
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Reference	<u>1-37</u>

ASTM Gear Calibration Workshop
San Antonio, TX January 13, 14, & 15, 2004

L-37 PINION GEARS Lubrited L247/T758A (MATRIX)

CMIR #	DISTRESS	RATER								Std Dev	Phase	Lab Orig Rate	
		1	4	6	7	10	25	MAX	MIN				AVG
46792	Ridging	9.0	9.0		10.0	9.0	9.0	10.0	9.0	9.20	0.447	1	9 8
1	Rippling	9.0	8.0		9.0	9.0	9.0	9.0	8.80	0.447			
18	Wear	7.0	8.0		7.0	7.0	7.0	8.0	7.0	7.20	0.447		
	Spitting	9.8	9.7		9.8	9.8	9.8	9.8	9.7	9.78	0.045		
	Scoring	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.00	0.000		
46776	Ridging	9.0	8.0		7.0	8.0	8.0	9.0	7.0	8.00	0.707	2	Lab B 7 8 6 9
2	Rippling	8.0	8.0		8.0	7.0	9.0	9.0	7.0	8.00	0.707		
514	Wear	5.0	6.0		6.0	5.0	6.0	6.0	5.0	5.60	0.548		
	Spitting	9.0	9.0		9.0	8.0	9.3	9.3	8.0	8.86	0.498		
128-1	Scoring	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.00	0.000		
46784	Ridging	9.0	9.0		7.0	8.0	9.0	9.0	7.0	8.40	0.894	1	6 7
3	Rippling	6.0	5.0		6.0	4.0	4.0	6.0	4.0	5.00	1.000		
?	Wear	6.0	7.0		7.0	6.0	7.0	7.0	6.0	6.60	0.548		
	Spitting	9.9	9.9		9.9	9.8	9.9	9.9	9.8	9.88	0.045		
	Scoring	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.00	0.000		
46787	Ridging	10.0	9.0		9.0	9.0	9.0	10.0	9.0	9.20	0.447	1	9 8
4	Rippling	9.0	8.0		9.0	9.0	9.0	9.0	8.0	8.80	0.447		
?	Wear	7.0	8.0		7.0	7.0	7.0	8.0	7.0	7.20	0.447		
	Spitting	8.0	8.0		9.0	8.0	8.0	9.0	8.0	8.20	0.447		
	Scoring	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.00	0.000		
46783	Ridging	9.0	9.0		7.0	9.0	9.0	9.0	7.0	8.60	0.894	1	6 7
5	Rippling	4.0	4.0		5.0	5.0	4.0	5.0	4.0	4.40	0.548		
?	Wear	6.0	7.0		5.0	6.0	7.0	7.0	5.0	6.20	0.837		
	Spitting	8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.00	0.000		
	Scoring	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.00	0.000		
49501	Ridging	9.0	9.0		7.0	9.0	9.0	9.0	7.0	8.60	0.894	2	Lab D 8 9 5 8
6	Rippling	9.0	8.0		9.0	9.0	9.0	9.0	8.0	8.80	0.447		
207	Wear	6.0	5.0		6.0	6.0	6.0	6.0	5.0	5.80	0.447		
	Spitting	9.0	9.0		9.0	8.0	9.3	9.3	8.0	8.86	0.498		
TMC 151-3	Scoring	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.00	0.000		
49494	Ridging	8.0	8.0		6.0	7.0	8.0	8.0	6.0	7.40	0.894	2	Lab D 7 7 5 9.3
7	Rippling	7.0	7.0		8.0	6.0	7.0	8.0	6.0	7.00	0.707		
199	Wear	5.0	5.0		5.0	4.0	6.0	6.0	4.0	5.00	0.707		
	Spitting	9.3	9.5		9.3	9.5	9.8	9.8	9.3	9.48	0.205		
128-1	Scoring	10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.00	0.000		

Attachment 2
Page 1 of 3
Reference L-37

Carbon Varnish Severity Study Before and After Implementing Changes
3-15-04

49498	Ridging	9.0	10.0	8.0	9.0	9.0	10.0	8.0	9.00	0.707	
8	Rippling	9.0	9.0	8.0	8.0	9.0	9.0	8.0	8.60	0.548	9
26	Wear	6.0	8.0	7.0	7.0	7.0	8.0	6.0	7.00	0.707	1 9
	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.90	0.000	
	Scoring	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.00	0.000	
46779	Ridging	9.0	8.0	6.0	7.0	8.0	9.0	6.0	7.60	1.140	LABS
9	Rippling	9.0	9.0	9.0	10.0	9.0	10.0	9.0	9.20	0.447	9
10	Wear	6.0	7.0	6.0	6.0	7.0	7.0	6.0	6.40	0.548	1 7
	Spitting	5.0	4.0	5.0	4.0	5.0	5.0	4.0	4.60	0.548	
128-1	Scoring	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.00	0.000	
49495	Ridging	8.0	8.0	6.0	6.0	8.0	8.0	6.0	7.20	1.095	Lab D
10	Rippling	7.0	7.0	8.0	8.0	8.0	8.0	7.0	7.60	0.548	7
218	Wear	5.0	5.0	5.0	5.0	6.0	6.0	5.0	5.20	0.447	2 8
	Spitting	8.0	9.0	9.0	9.0	9.3	9.3	8.0	8.86	0.498	6
128-1	Scoring	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.00	0.000	9.5
46794	Ridging	9.0	9.0	7.0	9.0	9.0	9.0	7.0	8.60	0.894	
11	Rippling	4.0	5.0	5.0	5.0	4.0	5.0	4.0	4.60	0.548	4
?	Wear	6.0	7.0	6.0	7.0	7.0	7.0	6.0	6.60	0.548	1 7
	Spitting	9.6	9.6	9.3	9.5	9.5	9.6	9.3	9.50	0.122	
	Scoring	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.00	0.000	
49500	Ridging	9.0	9.0	8.0	9.0	9.0	9.0	8.0	8.80	0.447	Lab D
12	Rippling	9.0	9.0	8.0	9.0	9.0	9.0	8.0	8.80	0.447	8
52	Wear	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.00	0.000	2 9
	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.90	0.000	6
TMC 151-3	Scoring	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.00	0.000	9.9
49196	Ridging	9.0	9.0	7.0	9.0	9.0	9.0	7.0	8.60	0.894	Lab E
13	Rippling	4.0	5.0	5.0	5.0	4.0	5.0	4.0	4.60	0.548	8
102	Wear	5.0	5.0	5.0	4.0	6.0	6.0	4.0	5.00	0.707	4
	Spitting	8.0	7.0	8.0	7.0	8.0	8.0	7.0	7.60	0.548	2 6
128-1	Scoring	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.00	0.000	7
46790	Ridging	9.0	9.0	8.0	9.0	9.0	9.0	8.0	8.80	0.447	
14	Rippling	5.0	6.0	5.0	5.0	4.0	6.0	4.0	5.00	0.707	4
13	Wear	6.0	6.0	6.0	6.0	7.0	7.0	6.0	6.20	0.447	1 7
	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.90	0.000	
	Scoring	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.00	0.000	
46083	Ridging	9.0	9.0	8.0	9.0	9.0	9.0	8.0	8.80	0.447	
15C	Rippling	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.00	0.000	8
28	Wear	7.0	8.0	7.0	7.0	8.0	8.0	7.0	7.40	0.548	1 8
	Spitting	9.9	9.9	9.8	9.9	9.9	9.9	9.8	9.88	0.045	
	Scoring	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.00	0.000	

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46086	Ridging	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.00	0.000	
16C	Rippling	9.0	9.0	9.0	8.0	8.0	9.0	8.0	8.60	0.548	8
21	Wear	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.00	0.000	7
	Spitting	9.9	9.9	9.5	9.9	9.9	9.9	9.5	9.82	0.179	1
	Scoring	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.00	0.000	
46795	Ridging	10.0	9.0	9.0	9.0	9.0	10.0	9.0	9.20	0.447	
17C	Rippling	9.0	8.0	9.0	8.0	9.0	9.0	8.0	8.60	0.548	9
11	Wear	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.00	0.000	8
	Spitting	3.0	3.0	3.0	4.0	3.0	4.0	3.0	3.20	0.447	1
	Scoring	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.00	0.000	
49195	Ridging	9.0	8.0	7.0	9.0	8.0	9.0	7.0	8.20	0.837	Lab E
18C	Rippling	4.0	4.0	5.0	6.0	5.0	6.0	4.0	4.80	0.837	8
387	Wear	5.0	5.0	6.0	5.0	6.0	6.0	5.0	5.40	0.548	2
	Spitting	8.0	9.0	9.0	9.0	9.0	9.0	8.0	8.80	0.447	5
	Scoring	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.00	0.000	6
49044	Ridging	10.0	9.0	9.0	8.0	9.0	10.0	8.0	9.00	0.707	9
19	Rippling	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.00	0.000	6
12G	Wear	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.00	0.000	2
<i>gone</i>	Spitting	9.3	9.4	9.7	9.0	9.0	9.7	9.0	9.28	0.295	5
TMC 151-3	Scoring	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.00	0.000	9.4
46777	Ridging	8.0	8.0	7.0	8.0	8.0	8.0	7.0	7.80	0.447	Lab B
20	Rippling	9.0	9.0	9.0	8.0	9.0	9.0	8.0	8.80	0.447	8
315	Wear	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.00	0.000	2
	Spitting	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.00	0.000	8
	Scoring	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.00	0.000	
46085	Ridging	10.0	9.0	9.0	9.0	9.0	10.0	9.0	9.20	0.447	Lab B
21	Rippling	8.0	8.0	9.0	8.0	8.0	9.0	8.0	8.20	0.447	9
403	Wear	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.00	0.000	7
<i>gone</i>	Spitting	9.7	9.8	9.5	9.7	9.6	9.8	9.5	9.66	0.114	2
TMC 151-3	Scoring	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.00	0.000	6
46775	Ridging	8.0	8.0	6.0	8.0	7.0	8.0	6.0	7.40	0.894	9
22	Rippling	10.0	9.0	9.0	10.0	9.0	10.0	9.0	9.40	0.548	7
17	Wear	6.0	7.0	7.0	6.0	7.0	7.0	6.0	6.60	0.548	1
	Spitting	9.6	9.7	9.8	9.5	9.6	9.8	9.5	9.64	0.114	7
	Scoring	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.00	0.000	
49199	Ridging	10.0	9.0	8.0	8.0	9.0	10.0	8.0	8.80	0.837	Lab E
23	Rippling	8.0	8.0	9.0	8.0	9.0	9.0	8.0	8.40	0.548	9
56	Wear	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.00	0.000	2
	Spitting	9.7	9.8	9.8	9.8	9.8	9.8	9.7	9.78	0.045	6
TMC 151-3	Scoring	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.00	0.000	9.8
46789	Ridging	9.0	9.0	7.0	8.0	9.0	9.0	7.0	8.40	0.894	Lab E
24	Rippling	8.0	9.0	9.0	8.0	9.0	9.0	8.0	8.60	0.548	9
268	Wear	6.0	5.0	6.0	6.0	6.0	6.0	5.0	5.80	0.447	2
	Spitting	9.7	9.7	9.5	9.5	9.6	9.7	9.5	9.60	0.100	6
TMC 151-3	Scoring	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.00	0.000	9.7

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