



Sample Lab Test Report

Link Test Report #: 172598-1
Test Description: SAE J661 Rev Feb 1997 Brake Lining Quality Test
Purpose of Test To Evaluate the Characteristics of Brake Materials
Program #: J661noinsp.chp
Lining Material: 04465-60340
Test Date(s): 05/06/2017 - 05/06/2017

Requested By:

ROYAL BRAKES CANADA
QUALITY CONTROL DEPARTMENT
1500-701 WEST GEORGIA STREET
VANCOUVER BC V7Y 1C6
CANADA

Tested By:

Testing Coordination and Facility
Dearborn Technical Center
401 Southfield Road
Dearborn, MI. 48120
www.linkeng.com
(313) 625-4000



SAE J661 Rev Feb 1997 Brake Lining Quality Test

Test Information

Customer Name	ROYAL BRAKES CANADA
Requestor	Quality Control Department
Test Procedure	SAE J661
Program Number	J661noinsp.chp
Test Coordinator	Chris Arquette
Test Equipment	Chase Machine #5531
Test Dates	05/06/2017 - 05/06/2017
Datalogger	v1.0.10
Template Version	3.00

Setup Details

Sample Material	04465-60340
Sample Size	25.4 mm x 25.4 mm
Sample Manufacturer	ROYAL BRAKES CANADA
Test Pressure	1034 kPa

Sample Test Summary

Normal Friction Coefficient	0.478	Pass
Normal Friction Class	G	
Hot Friction Coefficient	0.505	Pass
Hot Friction Class	G	
Minimum Bold Coefficient	0.386	Pass
Max Variation Below Average for Bold Readings	0.000	Pass
Max % Variation for Bold Readings	0.00%	Pass

Pass / Fail

Pass

Comments:

Processed by:	Chris Arquette (313) 625-4000	Title:	Test Engineer	Date:	05/08/2017
Reviewed by:	Radoslaw Markiewicz (313) 625-4000	Title:	Supervising Engineer	Date:	05/08/2017

Data applicable to the materials tested. Report can be copied in full. Bilateral uncertainty of measurements 0.63% of FS. Coverage factor of 2. Confidence of 95%. Details available upon request.



Sample 1
172598-A1

Test Number

Manufacturer
ROYAL BRAKES CANADA

Initial Baseline

Material
04465-60340

Application Sample 1
1 0.347
20 0.335

Normal **0.478** **G**

First Fade

Temp (°C) Sample 1
93.3 0.352
287.8 0.420
(or Temp @ 10min)

Hot **0.505** **G**

First Recovery

Temp (°C) Sample 1
260.0 0.390
204.4 0.421
148.9 0.409
93.3 0.378

<u>Average</u>	<u>Norm/Hot</u>
0.390	
0.421	Hot
0.409	Hot
0.378	

Wear

Application Sample 1
1 0.470
100 0.530

Second Fade

Temp (°C) Sample 1
93.3 0.386
121.1 0.453
148.9 0.501
176.7 0.548
204.4 0.572
232.2 0.564
260.0 0.560
287.8 0.549
315.6 0.544
343.3 0.487
(or Temp @ 10min)

<u>Average</u>	<u>Max Var.</u> <u>< Average</u>	<u>Norm/Hot</u>	<u>% Var</u>
0.386	0.000	Normal	0%
0.453	0.000	Normal	0%
0.501	0.000	Normal	0%
0.548	0.000	-	0%
0.572	0.000	Normal	0%
0.564	0.000	Hot	0%
0.560	0.000	Hot	0%
0.549	0.000	Hot	0%
0.544	0.000	Hot	0%
0.487	0.000	Hot	0%

Second Recovery

Temp (°C) Sample 1
315.6 0.493
260.0 0.531
204.4 0.524
148.9 0.458
93.3 0.387

<u>Average</u>	<u>Max Var.</u> <u>< Average</u>	<u>Norm/Hot</u>	<u>% Var</u>
0.493	0.000	-	0%
0.531	0.000	Hot	0%
0.524	0.000	Hot	0%
0.458	0.000	Hot	0%
0.387	0.000	-	0%

Final Baseline

Application Sample 1
1 0.380
20 0.404



Manufacturer: ROYAL BRAKES CANADA
Material: 04465-60340
Test Pressure: 1034 kPa

Normal **0.478**
Hot **0.505**

G
G

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Wear

	Initial	Final	Loss	Loss / %
Weight (gram)	8.474	7.993	0.481	5.68
Thickness (mm)	0.249	0.231	0.018	7.23
Indicator	N/A	N/A	N/A	N/A

Baseline

Event	Initial		Final	
	Force (N)	μ	Force (N)	μ
1	231.3	0.347	252.6	0.380
5	228.3	0.342	271.0	0.405
10	228.0	0.342	273.3	0.409
15	226.4	0.339	276.6	0.414
20	223.8	0.335	270.1	0.404

Wear

Event	Force (N)	μ
1	313.6	0.470
10	351.3	0.527
20	361.8	0.542
30	366.0	0.549
40	365.2	0.547
50	372.6	0.558
60	358.7	0.537
70	343.9	0.514
80	336.7	0.505
90	339.5	0.509
100	353.8	0.530

First Fade

Time (sec)	Force (N)	μ	Temp (°C)
0.0	210.4	0.323	82
30.0	243.4	0.364	102
60.0	265.8	0.398	123
90.0	282.4	0.423	144
120.0	301.5	0.452	167
150.0	311.4	0.468	191
180.0	315.3	0.473	216
210.0	313.7	0.470	240
240.0	299.8	0.450	263
270.0	280.7	0.420	286
273.6	280.0	0.383	288

Second Fade

Time (sec)	Force (N)	μ	Temp (°C)
0.0	214.7	0.330	83
30.0	276.6	0.414	105
60.0	313.6	0.470	129
90.0	342.3	0.514	155
120.0	368.3	0.552	184
150.0	381.8	0.570	212
180.0	379.0	0.568	240
210.0	371.7	0.558	266
240.0	363.5	0.545	293
270.0	361.5	0.541	317
300.0	339.6	0.510	338
311.2	325.1	0.449	344

First Recovery

Event	Force (N)	μ	Temp (°C)
1	260.4	0.390	261
2	281.0	0.421	209
3	272.6	0.409	155
4	252.0	0.378	100

Second Recovery

Event	Force (N)	μ	Temp (°C)
1	329.6	0.493	317
2	354.2	0.531	265
3	348.6	0.524	211
4	305.0	0.458	156
5	258.0	0.387	100



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Material: 04465-60340
Test Pressure: 1034 kPa

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Coefficient of Friction

