



Sample Lab Test Report

Link Test Report: 110691-1
Test Description: SAE J661 Rev Feb 1997 Brake Lining Quality
Purpose of Test: To Evaluate the Characteristics of Brake
Materials
Program: J661noinsp.chp
Lining Material: D1044-7947
Test Date(s): 2/24/2011 to 2/24/2011

Requested By

HARDEX BRAKES LTD
Harry D
200-1311 Howe Street
Vancouver, Bc V6Z 2P3,

CANADA

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Test Number
110691-1

Customer Reference
D1044-7947

SAE J661 Rev Feb 1997 Brake Lining Quality Test

Test Information

Customer Name	Hardex Brakes Ltd
Requestor	Harry D
Test Procedure	SAE J661
Program Number	J661noinsp.chp
Test Coordinator	FOREN, TODD
Test Equipment	Chase Machine 0013
Test Dates	2/24/2011 to 2/24/2011
Datalogger	v1.0.10
Template Version	2.00

Setup Details

Sample Material	D1044-7947
Sample Size	1" X 1"
Sample Manufacturer	Hardex Brakes Ltd
Test Pressure	150 psi

Sample Test Summary

Normal Friction Coefficient	0.354	Pass
Normal Friction Class	F	
Hot Friction Coefficient	0.367	Pass
Hot Friction Class	F	
Minimum Bold Coefficient	0.317	Pass
Max Variation Below Average	0.000	Pass
Max % Variation for Bold Readings	0%	Pass

Pass / Fail

Pass

Comments:

Created by:	Todd Foren (313) 933-4900	Title	Test Engineer	Date	2/24/2011
Reviewed by:	Todd Foren (313) 933-4900	Title	Test Engineer	Date	2/24/2011

Data applicable to the materials tested. **Valid if signed by the test engineer.** 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.



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Customer Reference
D1044-7947

Test Number
Sample 1 Sample 2 Sample 3 Sample 4 Sample 5
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Manufacturer
HARDEX BRAKE

Initial Baseline
Application Sample 1 Sample 2 Sample 3 Sample 4 Sample 5
1 0.426
20 0.483

Material
D1044-7947

Normal **0.354** **F**

First Fade
Temp (F) Sample 1 Sample 2 Sample 3 Sample 4 Sample 5
200 0.502
500 0.441
(or Temp @ 10min)

Hot **0.367** **F**

First Recovery
Temp (F) Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Average Norm/Hot
500 0.429 0.429
400 0.447 0.447 Hot
300 0.464 0.464 Hot
200 0.448 0.448

Wear
Application Sample 1 Sample 2 Sample 3 Sample 4 Sample 5
1 0.479
100 0.277

Second Fade
Temp (F) Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Average Max Var. < Average Norm/Hot % Var
200 0.342 0.342 0.000 Normal
250 0.376 0.376 0.000 Normal
300 0.398 0.398 0.000 Normal
350 0.338 0.338 0.000 Normal
400 0.317 0.317 0.000 Normal
450 0.357 0.357 0.000 Hot
500 0.351 0.351 0.000 Hot
550 0.339 0.339 0.000 Hot
600 0.303 0.303 0.000 Hot
650 0.303 0.303 0.000 Hot
(or Temp @ 10min)

Second Recovery
Temp (F) Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Average Max Var. < Average Norm/Hot % Var
600 0.330 0.330 0.000
500 0.338 0.338 0.000 Hot
400 0.343 0.343 0.000 Hot
300 0.359 0.359 0.000 Hot
200 0.368 0.368 0.000

Final Baseline
Application Sample 1 Sample 2 Sample 3 Sample 4 Sample 5
1 0.371
20 0.362



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Customer Reference
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Manufacturer: HARDEX BRAKE
Material: D1044-7947
Test Pressure: 150 psi

Normal **0.354** **F**
Hot **0.367** **F**

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Wear

	Initial	Final	Loss		Specific Wear	
Weight (gr)	9.762	9.317	0.445	5%	3.54E-03	gr/hp-hr
Thickness (in)	0.249	0.238	0.011	4%	8.75E-05	in ³ /hp-hr

Baseline

Event	Initial		Final	
	Force (lb)	μ	Force (lb)	μ
1	64	0.426	56	0.371
5	65	0.436	54	0.367
10	66	0.434	58	0.379
15	73	0.482	57	0.375
20	74	0.483	55	0.362

Wear

Event	Force (lb)	μ
1	73	0.479
10	65	0.437
20	64	0.425
30	52	0.346
40	52	0.347
50	48	0.313
60	46	0.306
70	43	0.284
80	42	0.283
90	48	0.320
100	42	0.277

First Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	76	0.502	245
30	77	0.516	289
60	79	0.522	338
90	76	0.507	381
120	74	0.493	422
150	71	0.473	461
180	65	0.433	499
210	63	0.414	528
240			
270			
300			
330			
360			
390			
420			
450			
480			
510			
540			
570			
600			

Second Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	51	0.342	204
30	59	0.398	238
60	55	0.370	278
90	58	0.385	315
120	50	0.331	357
150	49	0.327	388
180	55	0.369	427
210	54	0.364	457
240	54	0.359	495
270	56	0.375	521
300	52	0.348	551
330	50	0.330	574
360	43	0.284	597
390	45	0.302	619
420	47	0.317	639
450			
480			
510			
540			
570			
600			

First Recovery

Event	Force (lb)	μ	Temp (°F)
1	67	0.429	498
2	66	0.447	399
3	69	0.464	300
4	66	0.448	201

Second Recovery

Event	Force (lb)	μ	Temp (°F)
1	52	0.330	597
2	50	0.338	498
3	50	0.343	399
4	52	0.359	299
5	54	0.368	200



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Manufacturer: HARDEX BRAKE
Material: D1044-7947
Test Pressure: 150 psi

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Coefficient of Friction

