



Test Report

Link Test Report:	230098-02
Test Description:	SAE J661 Nov 2012
Purpose of Test:	To Evaluate the Characteristics of Brake Materials
Program:	J661noinsp.chp
Lining Material:	SL427
Test Date(s):	3/10/2023 to 3/12/2023

Requested By

Zhongshan Safety Auto Parts CO., LTD
Li Dongwei

Testing Coordination and Facility

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Test Number
230098-02

Customer Reference
C-0064

SAE J661 Nov 2012

Test Information

Customer Name	Zhongshan Safety Auto Parts CO., LTD
Requestor	Li Dongwei
Test Procedure	SAE J661
Program Number	J661noinsp.chp
Test Coordinator	Luka Wei
Test Equipment	Chase Machine
Test Dates	3/10/2023 to 3/12/2023
Datalogger	v1.0.10
Template Version	2.00

Setup Details

Sample Material	SL427
Sample Size	1" X 1"
Sample Manufacturer	Zhongshan Safety Auto Parts CO., LTD
Test Pressure	150 psi

Sample Test Summary

Normal Friction Coefficient	0.454	Pass
Normal Friction Class	G	
Hot Friction Coefficient	0.435	Pass
Hot Friction Class	F	
Minimum Bold Coefficient	0.378	Pass
Max Variation Below Average	0.025	Pass
Max % Variation for Bold Readings	6%	Pass

Pass / Fail

Pass

Comments:

N/A

Created by: Luka Wei

Signature:

Date 3/15/2023

Reviewed by: Duel Tang

Signature:

Date 3/15/2023



Test Number
230098-02

Customer Reference
C-0064

Test Number						Manufacturer			
<u>Sample 1</u>		<u>Sample 2</u>	<u>Sample 3</u>	<u>Sample 4</u>	<u>Sample 5</u>	Zhongshan Safety Auto			
230098-02-A		230098-02-B	230098-02-C	230098-02-D	230098-02-E	Parts CO., LTD			
						Material			
						SL427			
Initial Baseline									
Application	<u>Sample 1</u>	<u>Sample 2</u>	<u>Sample 3</u>	<u>Sample 4</u>	<u>Sample 5</u>				
1	0.446	0.422	0.512	0.382	0.357				
20	0.635	0.585	0.672	0.583	0.584				
						Normal	0.454	G	
First Fade									
Temp (F)	<u>Sample 1</u>	<u>Sample 2</u>	<u>Sample 3</u>	<u>Sample 4</u>	<u>Sample 5</u>				
200	0.633	0.583	0.657	0.594	0.583	Hot	0.435	F	
500	0.453	0.458	0.463	0.423	0.421				
(or Temp @ 10min)									
First Recovery									
Temp (F)	<u>Sample 1</u>	<u>Sample 2</u>	<u>Sample 3</u>	<u>Sample 4</u>	<u>Sample 5</u>	<u>Average</u>	<u>Norm/Hot</u>		
500	0.466	0.483	0.508	0.453	0.456	0.473			
400	0.472	0.510	0.526	0.500	0.470	0.496	Hot		
300	0.480	0.495	0.568	0.512	0.488	0.509	Hot		
200	0.464	0.505	0.525	0.504	0.517	0.503			
Wear									
Application	<u>Sample 1</u>	<u>Sample 2</u>	<u>Sample 3</u>	<u>Sample 4</u>	<u>Sample 5</u>				
1	0.526	0.557	0.581	0.546	0.525				
100	0.435	0.445	0.429	0.419	0.426				
Second Fade									
Temp (F)	<u>Sample 1</u>	<u>Sample 2</u>	<u>Sample 3</u>	<u>Sample 4</u>	<u>Sample 5</u>	<u>Average</u>	Max Var. < Average	Norm/Hot	% Var
200	0.383	0.411	0.378	0.439	0.405	0.403	0.025	Normal	6%
250	0.446	0.450	0.472	0.474	0.476	0.464	0.018	Normal	4%
300	0.477	0.489	0.507	0.494	0.491	0.492	0.015	Normal	3%
350	0.472	0.494	0.511	0.466	0.488	0.486	0.020	—	4%
400	0.446	0.468	0.486	0.435	0.459	0.459	0.024	Normal	5%
450	0.425	0.441	0.436	0.436	0.433	0.434	0.009	Hot	2%
500	0.418	0.421	0.440	0.424	0.431	0.427	0.009	Hot	2%
550	0.397	0.413	0.395	0.409	0.400	0.403	0.008	Hot	2%
600	0.391	0.398	0.390	0.388	0.379	0.389	0.010	Hot	3%
650	0.387	0.393	0.366	0.383	0.375	0.381	0.015	Hot	4%
(or Temp @ 10min)									
Second Recovery									
Temp (F)	<u>Sample 1</u>	<u>Sample 2</u>	<u>Sample 3</u>	<u>Sample 4</u>	<u>Sample 5</u>	<u>Average</u>	Max Var. < Average	Norm/Hot	% Var
600	0.400	0.420	0.408	0.391	0.405	0.405	0.014		3%
500	0.412	0.435	0.420	0.420	0.419	0.421	0.009	Hot	2%
400	0.424	0.438	0.451	0.442	0.434	0.438	0.014	Hot	3%
300	0.433	0.461	0.450	0.469	0.454	0.453	0.020	Hot	4%
200	0.427	0.430	0.446	0.456	0.479	0.448	0.021		5%
Final Baseline									
Application	<u>Sample 1</u>	<u>Sample 2</u>	<u>Sample 3</u>	<u>Sample 4</u>	<u>Sample 5</u>				
1	0.446	0.451	0.444	0.478	0.495				
20	0.559	0.519	0.537	0.544	0.561				



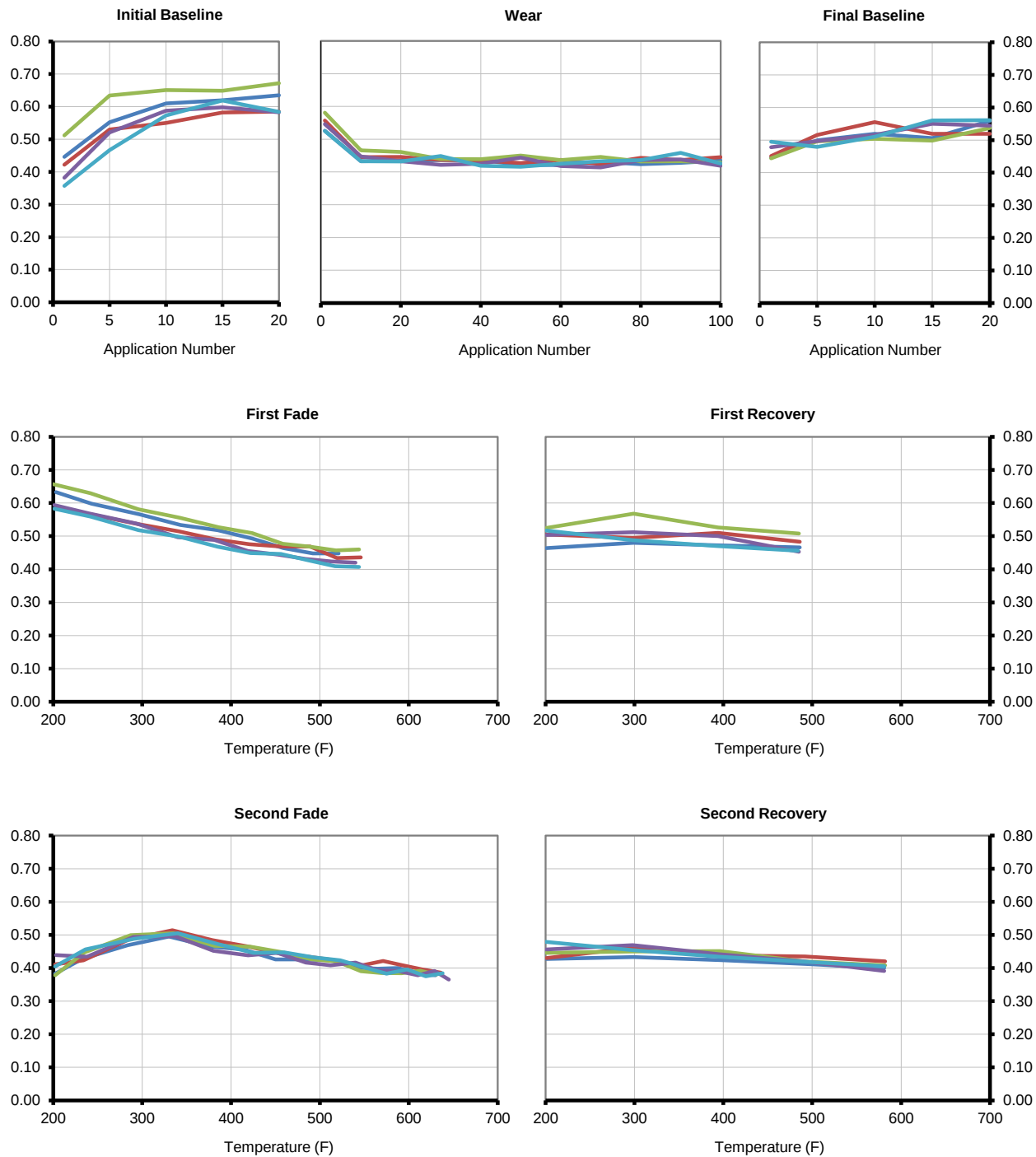
Test Number
230098-02

Customer Reference
C-0064

Manufacturer: Zhongshan Safety Auto Parts CO., LTD
Material: SL427
Test Pressure: 150 psi

Sample 1
Sample 2
Sample 3
Sample 4
Sample 5

Coefficient of Friction





Test Number
230098-02

Customer Reference
C-0064

Normal **0.438** **F**
Hot **0.424** **F**

3/10/2023
230098-02-A
Sample 1 of 5

Wear

	Initial	Final	Loss		Specific Wear	
Weight (gr)	7.68	7.2	0.48	6%	3.07E-03	gr/hp-hr
Thickness (in)	0.237	0.223	0.014	6%	8.94E-05	in ³ /hp-hr

Baseline

Event	Initial		Final	
	Force (lb)	μ	Force (lb)	μ
1	68	0.446	67	0.446
5	84	0.552	75	0.499
10	92	0.610	79	0.519
15	93	0.620	76	0.506
20	95	0.635	84	0.559

Wear

Event	Force (lb)	μ
1	80	0.526
10	66	0.433
20	66	0.434
30	66	0.436
40	65	0.436
50	64	0.422
60	64	0.421
70	65	0.431
80	64	0.424
90	64	0.428
100	66	0.435

First Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	95	0.633	203
30	90	0.598	243
60	84	0.566	297
90	80	0.534	343
120	78	0.518	385
150	74	0.493	424
180	70	0.464	459
210	67	0.448	492
240	67	0.448	521
270			
300			
330			
360			
390			
420			
450			
480			
510			
540			
570			
600			

Second Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	58	0.383	202
30	64	0.428	233
60	70	0.469	284
90	75	0.495	330
120	70	0.465	376
150	68	0.456	414
180	64	0.426	450
210	63	0.426	482
240	64	0.424	512
270	61	0.401	540
300	60	0.398	565
330	60	0.400	588
360	57	0.383	610
390	56	0.378	630
420			
450			
480			
510			
540			
570			
600			

First Recovery

Event	Force (lb)	μ	Temp (°F)
1	70	0.466	486
2	72	0.472	395
3	73	0.480	299
4	70	0.464	201

Second Recovery

Event	Force (lb)	μ	Temp (°F)
1	61	0.400	581
2	61	0.412	492
3	63	0.424	396
4	66	0.433	299
5	65	0.427	201

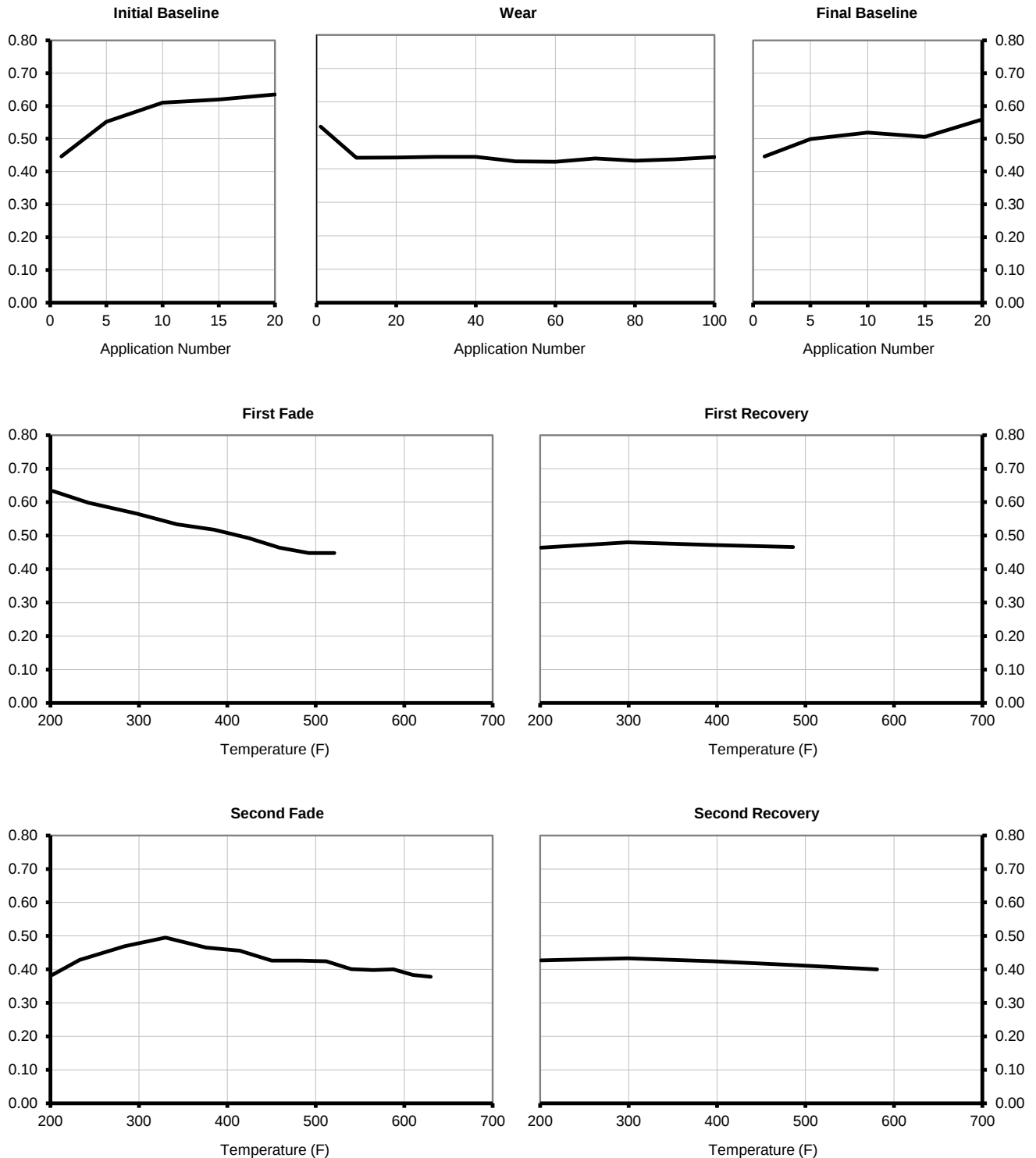


Test Number
230098-02

Customer Reference
C-0064

3/10/2023
230098-02-A
Sample 1 of 5

Coefficient of Friction





Test Number
230098-02

Customer Reference
C-0064

Normal

0.455

G

Hot

0.441

F

3/10/2023
230098-02-B
Sample 2 of 5

Wear

	Initial	Final	Loss		Specific Wear	
Weight (gr)	7.67	7.18	0.49	6%	3.11E-03	gr/hp-hr
Thickness (in)	0.237	0.2255	0.0115	5%	7.31E-05	in ³ /hp-hr

Baseline

Event	Initial		Final	
	Force (lb)	μ	Force (lb)	μ
1	63	0.422	68	0.451
5	80	0.530	79	0.516
10	84	0.550	83	0.555
15	88	0.582	79	0.519
20	89	0.585	78	0.519

Wear

Event	Force (lb)	μ
1	85	0.557
10	67	0.445
20	67	0.446
30	66	0.437
40	65	0.435
50	65	0.427
60	66	0.437
70	64	0.424
80	67	0.443
90	65	0.436
100	67	0.445

First Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	88	0.583	203
30	85	0.566	242
60	80	0.537	294
90	77	0.515	341
120	74	0.490	383
150	71	0.476	421
180	70	0.469	456
210	70	0.469	489
240	66	0.434	519
270	66	0.436	546
300			
330			
360			
390			
420			
450			
480			
510			
540			
570			
600			

Second Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	62	0.411	202
30	64	0.423	234
60	73	0.486	285
90	77	0.514	334
120	72	0.484	379
150	70	0.465	419
180	66	0.444	455
210	65	0.434	487
240	64	0.423	517
270	61	0.407	545
300	63	0.421	571
330	61	0.408	593
360	59	0.396	615
390	58	0.386	636
420			
450			
480			
510			
540			
570			
600			

First Recovery

Event	Force (lb)	μ	Temp (°F)
1	73	0.483	486
2	76	0.510	394
3	75	0.495	298
4	77	0.505	201

Second Recovery

Event	Force (lb)	μ	Temp (°F)
1	63	0.420	582
2	65	0.435	492
3	66	0.438	396
4	69	0.461	298
5	64	0.430	201

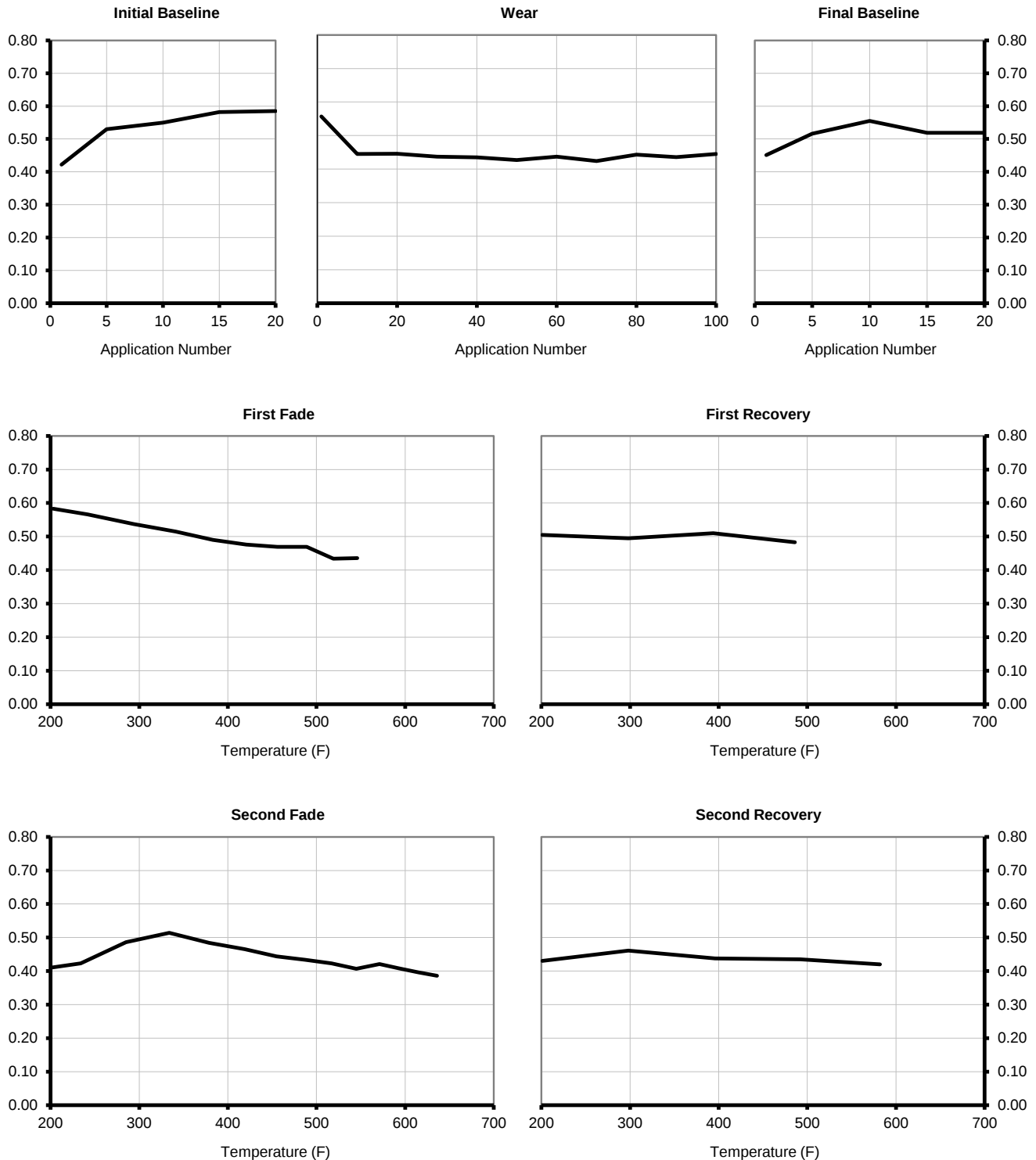


Test Number
230098-02

Customer Reference
C-0064

3/10/2023
230098-02-B
Sample 2 of 5

Coefficient of Friction





Test Number
230098-02

Customer Reference
C-0064

Normal **0.461** **G**
Hot **0.444** **F**

3/11/2023
230098-02-C
Sample 3 of 5

Wear

	Initial	Final	Loss		Specific Wear	
Weight (gr)	7.89	7.44	0.45	6%	2.78E-03	gr/hp-hr
Thickness (in)	0.24	0.228	0.012	5%	7.41E-05	in ³ /hp-hr

Baseline

Event	Initial		Final	
	Force (lb)	μ	Force (lb)	μ
1	77	0.512	67	0.444
5	96	0.634	74	0.496
10	98	0.651	75	0.504
15	99	0.649	74	0.498
20	102	0.672	81	0.537

Wear

Event	Force (lb)	μ
1	87	0.581
10	71	0.466
20	70	0.461
30	67	0.440
40	66	0.439
50	67	0.450
60	66	0.436
70	67	0.446
80	66	0.432
90	66	0.433
100	65	0.429

First Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	99	0.657	200
30	95	0.630	242
60	87	0.581	296
90	83	0.556	342
120	80	0.527	386
150	77	0.509	424
180	72	0.477	458
210	70	0.468	489
240	68	0.457	518
270	69	0.460	544
300			
330			
360			
390			
420			
450			
480			
510			
540			
570			
600			

Second Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	58	0.378	202
30	67	0.447	235
60	75	0.499	287
90	76	0.505	335
120	70	0.467	381
150	70	0.464	422
180	67	0.448	457
210	64	0.426	491
240	63	0.420	519
270	59	0.390	546
300	58	0.385	569
330	58	0.384	592
360	59	0.392	613
390	57	0.380	631
420			
450			
480			
510			
540			
570			
600			

First Recovery

Event	Force (lb)	μ	Temp (°F)
1	77	0.508	485
2	80	0.526	394
3	85	0.568	299
4	80	0.525	201

Second Recovery

Event	Force (lb)	μ	Temp (°F)
1	62	0.408	582
2	64	0.420	491
3	68	0.451	396
4	67	0.450	298
5	67	0.446	201

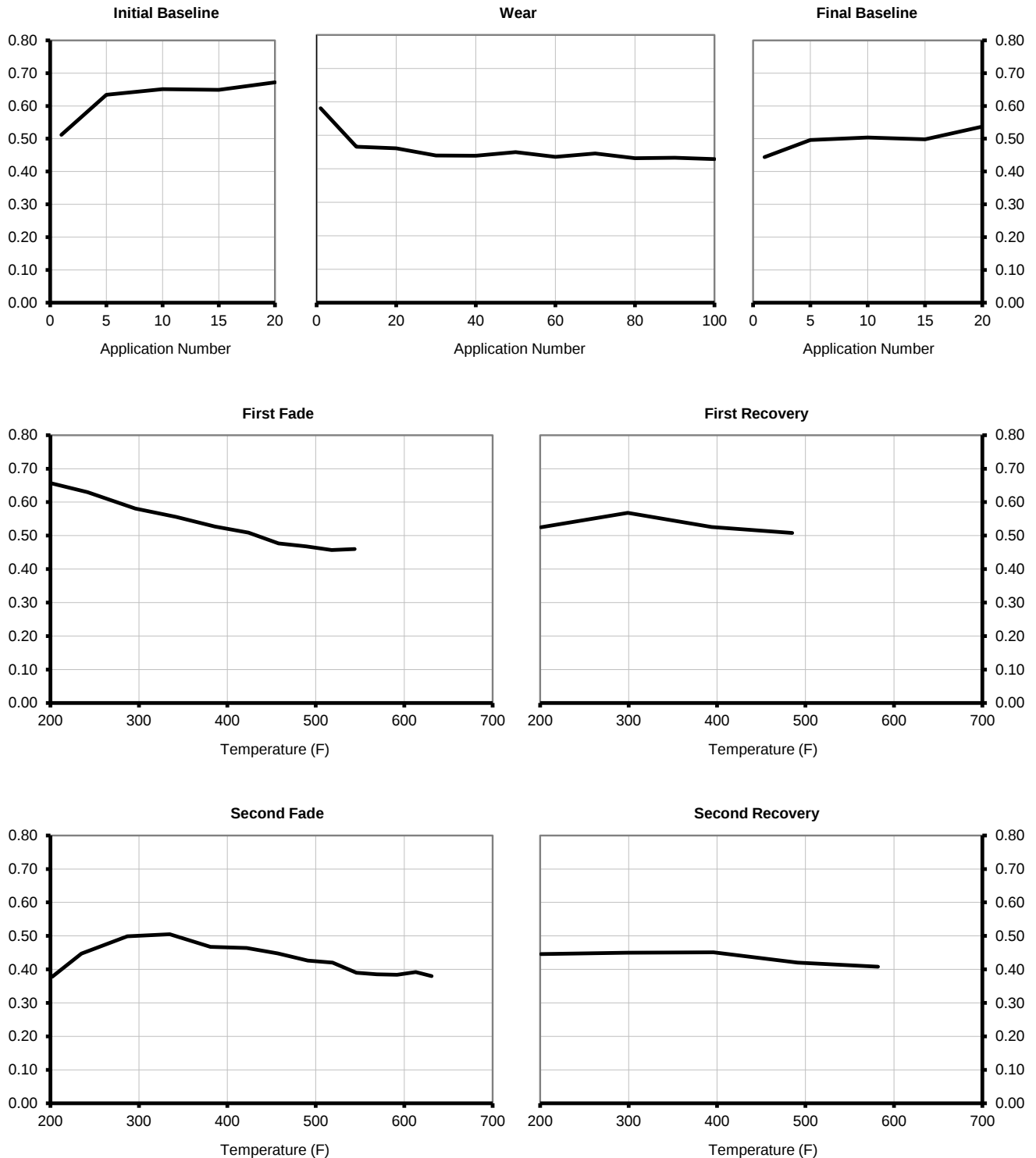


Test Number
230098-02

Customer Reference
C-0064

3/11/2023
230098-02-C
Sample 3 of 5

Coefficient of Friction





Test Number
230098-02

Customer Reference
C-0064

Normal **0.461** **G**
Hot **0.438** **F**

3/12/2023
230098-02-D
Sample 4 of 5

Wear

	Initial	Final	Loss		Specific Wear	
Weight (gr)	7.81	7.39	0.42	5%	2.70E-03	gr/hp-hr
Thickness (in)	0.2375	0.227	0.0105	4%	6.74E-05	in ³ /hp-hr

Baseline

Event	Initial		Final	
	Force (lb)	μ	Force (lb)	μ
1	59	0.382	71	0.478
5	78	0.521	75	0.497
10	89	0.588	78	0.516
15	89	0.598	83	0.550
20	87	0.583	82	0.544

Wear

Event	Force (lb)	μ
1	83	0.546
10	67	0.447
20	65	0.433
30	63	0.422
40	64	0.425
50	67	0.444
60	63	0.418
70	63	0.414
80	66	0.436
90	66	0.438
100	63	0.419

First Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	90	0.594	201
30	86	0.569	240
60	81	0.538	294
90	74	0.497	340
120	73	0.489	381
150	69	0.455	419
180	67	0.444	453
210	64	0.431	484
240	63	0.424	513
270	63	0.420	540
300			
330			
360			
390			
420			
450			
480			
510			
540			
570			
600			

Second Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	66	0.439	203
30	65	0.434	238
60	74	0.494	290
90	74	0.496	337
120	68	0.452	380
150	66	0.438	419
180	67	0.446	452
210	63	0.416	484
240	62	0.408	512
270	62	0.416	540
300	59	0.394	564
330	58	0.390	589
360	57	0.378	610
390	57	0.391	629
420	56	0.365	645
450			
480			
510			
540			
570			
600			

First Recovery

Event	Force (lb)	μ	Temp (°F)
1	69	0.453	485
2	75	0.500	394
3	77	0.512	299
4	75	0.504	201

Second Recovery

Event	Force (lb)	μ	Temp (°F)
1	60	0.391	581
2	64	0.420	491
3	67	0.442	395
4	70	0.469	298
5	68	0.456	201

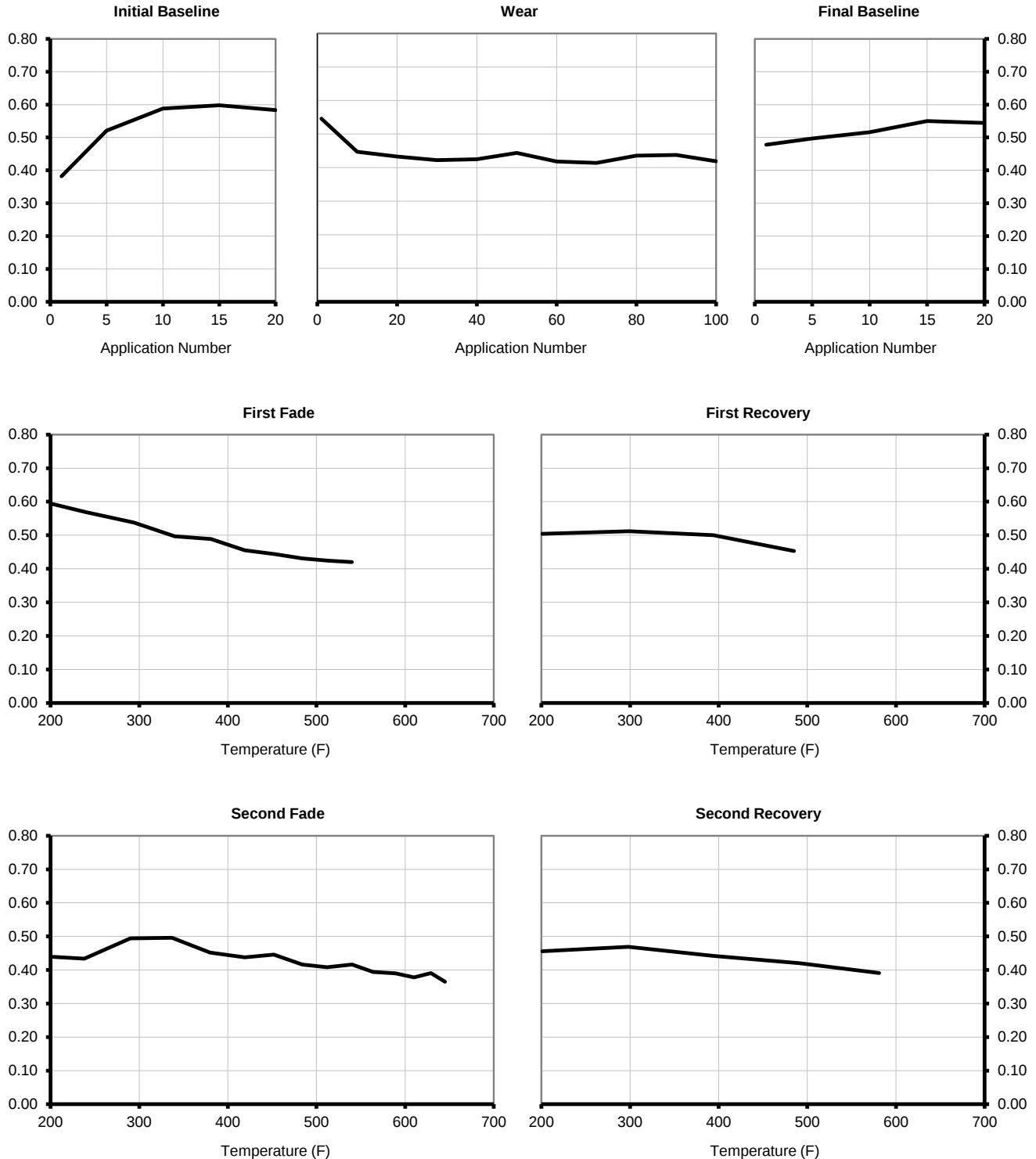


Test Number
230098-02

Customer Reference
C-0064

3/12/2023
230098-02-D
Sample 4 of 5

Coefficient of Friction





Test Number
230098-02

Customer Reference
C-0064

Normal **0.458** **G**
Hot **0.428** **F**

3/12/2023
230098-02-E
Sample 5 of 5

Wear

	Initial	Final	Loss		Specific Wear	
Weight (gr)	7.85	7.4	0.45	6%	2.90E-03	gr/hp-hr
Thickness (in)	0.236	0.2245	0.0115	5%	7.41E-05	in ³ /hp-hr

Baseline

Event	Initial		Final	
	Force (lb)	μ	Force (lb)	μ
1	54	0.357	75	0.495
5	70	0.467	73	0.479
10	86	0.573	76	0.510
15	91	0.619	84	0.560
20	87	0.584	85	0.561

Wear

Event	Force (lb)	μ
1	79	0.525
10	66	0.433
20	65	0.432
30	68	0.449
40	63	0.419
50	63	0.416
60	64	0.425
70	66	0.433
80	66	0.436
90	69	0.458
100	64	0.426

First Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	89	0.583	201
30	84	0.559	242
60	78	0.518	296
90	75	0.498	342
120	70	0.468	385
150	67	0.449	422
180	67	0.446	456
210	65	0.427	487
240	62	0.409	517
270	61	0.407	544
300			
330			
360			
390			
420			
450			
480			
510			
540			
570			
600			

Second Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	60	0.405	202
30	69	0.456	236
60	73	0.488	291
90	76	0.505	340
120	71	0.472	386
150	67	0.446	425
180	67	0.447	460
210	65	0.432	493
240	63	0.423	523
270	60	0.402	550
300	58	0.383	575
330	59	0.396	598
360	56	0.375	619
390	58	0.384	638
420			
450			
480			
510			
540			
570			
600			

First Recovery

Event	Force (lb)	μ	Temp (°F)
1	70	0.456	484
2	72	0.470	393
3	73	0.488	298
4	77	0.517	201

Second Recovery

Event	Force (lb)	μ	Temp (°F)
1	62	0.405	581
2	63	0.419	490
3	65	0.434	395
4	69	0.454	298
5	73	0.479	200



Test Number
230098-02

Customer Reference
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3/12/2023
230098-02-E
Sample 5 of 5

Coefficient of Friction

