Test Report

Link Test Report:	220526-02
Test Description:	SAE J661
Purpose of Test:	SAE J661 SL427
Program:	J661noinsp.chp
Lining Material:	SL427
Test Date(s):	26/05/2022 to 27/05/2022

Requested By

Zhongshan Safety Auto Parts Co.,Ltd.
Li dongwei

Testing Coordination and Facility
Link Transportation Testing Technology (Shanghai) Co., Ltd
Building No.2, 778 Zhao Xian Road, Jiading District, Shanghai
Shanghai, 201821
www.linkeng.com
Phone: (021) 5916-5656
Fax: (021) 5916-5959

SAE J661 SL427

Test Information

Customer Name	Zhongshan Safety Auto Parts Co.,Ltd.
Requestor	Li dongwei
Test Procedure	SAE J661
Program Number	J661noinsp.chp
Test Coordinator	Alan Yang
Test Equipment	Chase Machine
Test Dates	26/05/2022 to 27/05/2022
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	0.544	Pass
Normal Friction Class	G	
Hot Friction Coefficient	0.486	Pass
Hot Friction Class	G	
Minimum Bold Coefficient	0.466	Pass
Max Variation Below Average	0.034	Pass
Max % Variation for Bold Readings	7%	Pass

Pass / Fail **Pass**

Comments:
N/A

Created by: Alan Yang **Signature:** **Date** 27/05/2022

Reviewed by: Thales Tresmondi **Signature:** **Date** 27/05/2022

Bilateral uncertainty of measurement available upon request.

Test Number
220526-02

Customer Reference
C-0064

Test Number

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
	220414-01-A	220414-01-B	220414-01-C	220414-01-D	220414-01-E

Manufacturer
Zhongshan Safety Auto Parts Co.,Ltd.
Material
SL427

Initial Baseline

Application	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
1	0.452	0.488	0.468	0.444	0.499
20	0.517	0.538	0.630	0.550	0.639

Normal **0.544** **G**

First Fade

Temp (F)	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
200	0.490	0.515	0.628	0.512	0.623
500	0.442	0.476	0.499	0.442	0.532

(or Temp @ 10min)

Hot **0.486** **G**

First Recovery

Temp (F)	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Average	Norm/Hot
500	0.448	0.468	0.528	0.389	0.573	0.481	
400	0.525	0.558	0.609	0.468	0.599	0.552	Hot
300	0.535	0.594	0.608	0.502	0.612	0.570	Hot
200	0.471	0.565	0.599	0.469	0.602	0.541	

Wear

Application	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
1	0.488	0.614	0.624	0.530	0.635
100	0.517	0.496	0.508	0.527	0.497

Second Fade

Temp (F)	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Average	Max Var. < Average	Norm/Hot	% Var
200	**0.490**	**0.547**	**0.503**	**0.476**	**0.503**	**0.504**	**0.028**	**Normal**	**6%**
250	**0.561**	**0.576**	**0.573**	**0.567**	**0.590**	**0.573**	**0.012**	**Normal**	**2%**
300	**0.563**	**0.567**	**0.581**	**0.561**	**0.586**	**0.572**	**0.011**	**Normal**	**2%**
350	**0.549**	**0.556**	**0.548**	**0.541**	**0.553**	**0.549**	**0.008**	__	**2%**
400	**0.533**	**0.541**	**0.532**	**0.510**	**0.528**	**0.529**	**0.019**	**Normal**	**4%**
450	**0.517**	**0.546**	**0.520**	**0.495**	**0.522**	**0.520**	**0.025**	**Hot**	**5%**
500	**0.506**	**0.530**	**0.488**	**0.486**	**0.512**	**0.504**	**0.018**	**Hot**	**4%**
550	**0.471**	**0.490**	**0.466**	**0.476**	**0.496**	**0.480**	**0.014**	**Hot**	**3%**
600	0.453	0.450	0.425	0.453	0.442	0.445	0.020	Hot	4%
650	0.407	0.388	0.378	0.402	0.394	0.394	0.016	Hot	4%

(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	0.416	0.394	0.407	0.413	0.409	0.408	0.014		**3%**
500	0.452	0.425	0.440	0.438	0.454	0.442	0.017	Hot	**4%**
400	0.479	0.469	0.468	0.447	0.472	0.467	0.020	Hot	**4%**
300	**0.491**	**0.504**	**0.482**	**0.466**	**0.493**	**0.487**	**0.021**	**Hot**	**4%**
200	**0.490**	**0.536**	**0.506**	**0.473**	**0.531**	**0.507**	**0.034**		**7%**

Final Baseline

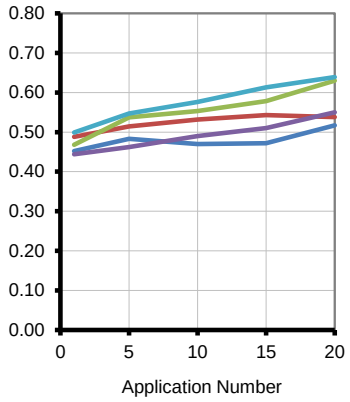
Application	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
1	0.492	0.541	0.515	0.502	0.545
20	0.546	0.568	0.536	0.557	0.574

Manufacturer: Zhongshan Safety Auto Parts Co.,Ltd.
Material: SL427
Test Pressure: 150 psi

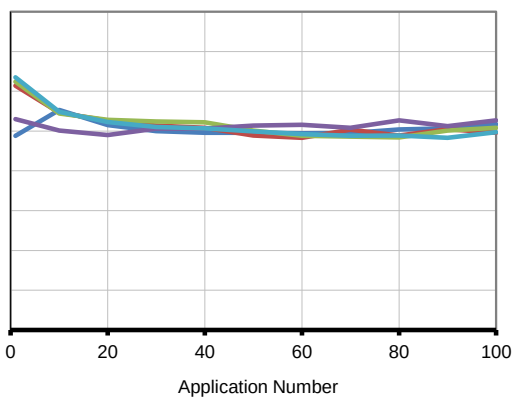
26/05/2022 to 27/05/2022
Summary of 5 Samples

Coefficient of Friction

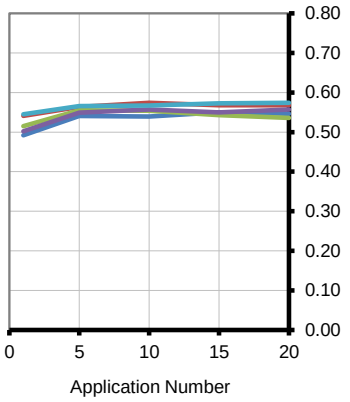
Initial Baseline



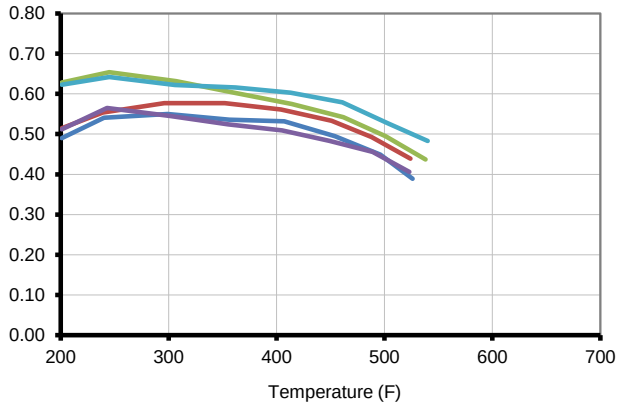
Wear



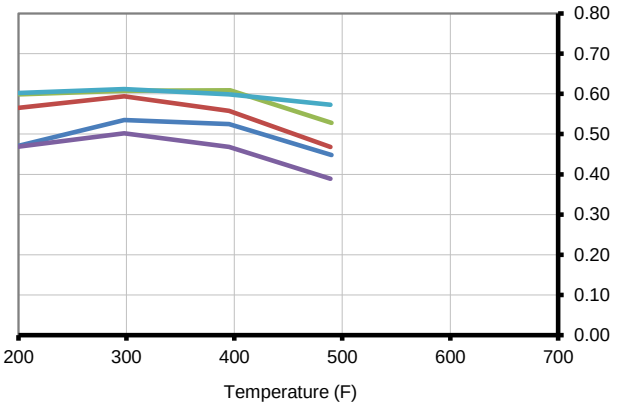
Final Baseline



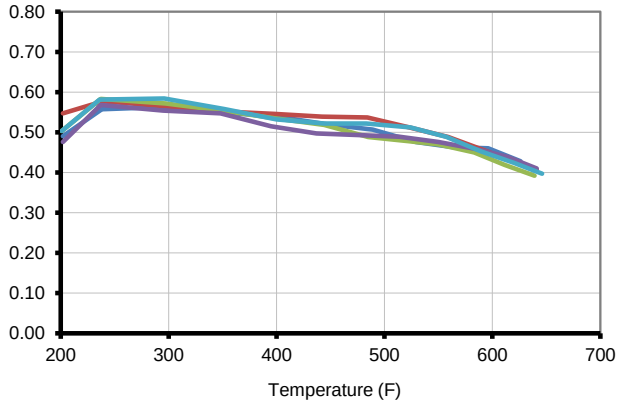
First Fade



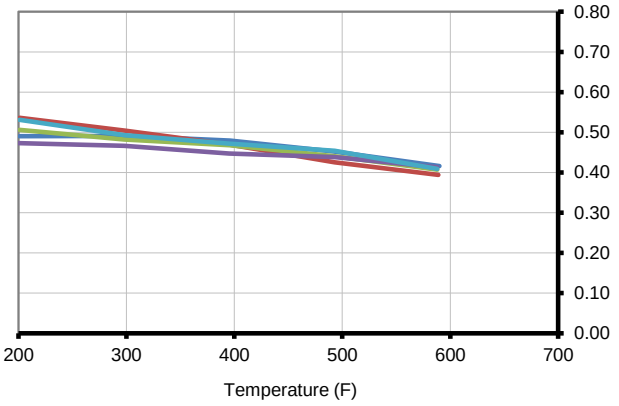
First Recovery



Second Fade



Second Recovery



Test Number
220526-02

Customer Reference
C-0064

Normal	**0.537**	**G**
Hot	**0.484**	**G**

26/5/2022
220414-01-A
Sample 1 of 5

Wear

	Initial	Final	Loss		Specific Wear	
Weight (gr)	7.79	7.46	0.33	4%	1.97E-03	gr/hp-hr
Thickness (in)	0.2365	0.2265	0.01	4%	5.96E-05	in^3/hp-hr

Baseline

	Initial		Final	
Event	Force (lb)	μ	Force (lb)	μ
1	68	0.452	74	0.492
5	73	0.483	82	0.541
10	71	0.470	82	0.539
15	72	0.472	83	0.550
20	78	0.517	83	0.546

Wear

Event	Force (lb)	μ
1	74	0.488
10	83	0.553
20	77	0.515
30	75	0.500
40	75	0.496
50	75	0.496
60	74	0.494
70	75	0.495
80	76	0.504
90	77	0.507
100	78	0.517

First Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	75	0.490	201
30	81	0.541	240
60	83	0.550	299
90	80	0.536	356
120	80	0.532	407
150	75	0.495	454
180	68	0.449	496
210	59	0.389	526
240			
270			
300			
330			
360			
390			
420			
450			
480			
510			
540			
570			
600			

Second Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	75	0.490	202
30	84	0.557	238
60	85	0.563	297
90	82	0.549	351
120	80	0.539	401
150	78	0.520	447
180	76	0.507	489
210	72	0.476	529
240	70	0.463	564
270	69	0.460	596
300	65	0.428	626
330			
360			
390			
420			
450			
480			
510			
540			
570			
600			

First Recovery

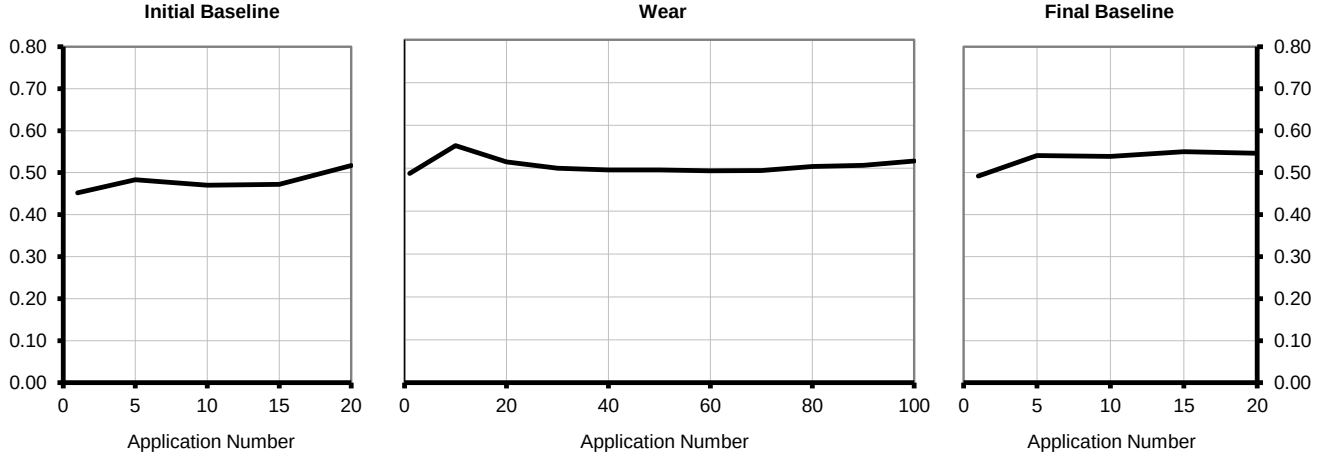
Event	Force (lb)	μ	Temp (°F)
1	67	0.448	490
2	80	0.525	395
3	81	0.535	298
4	71	0.471	200

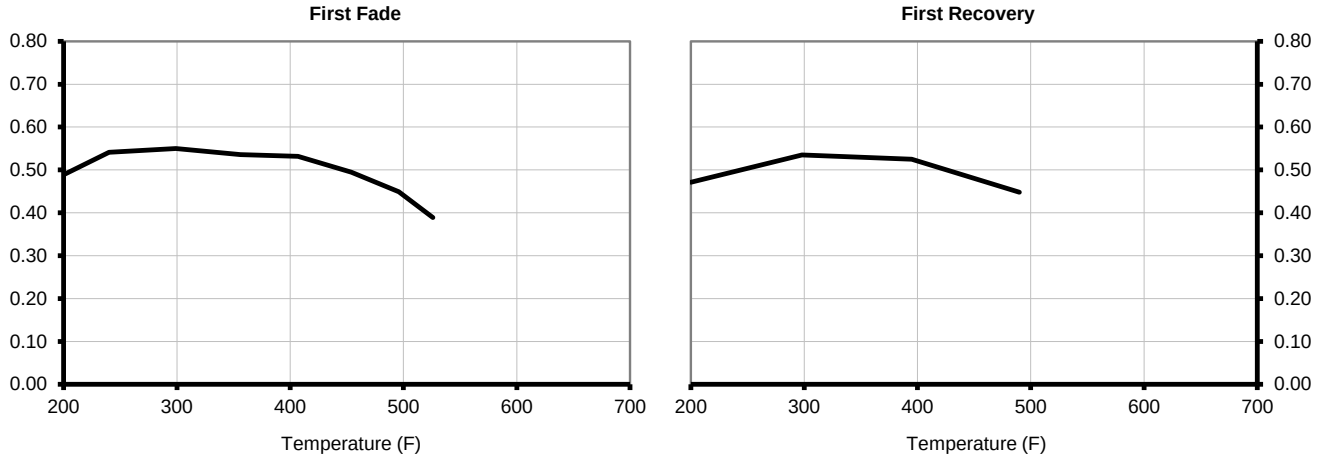
Second Recovery

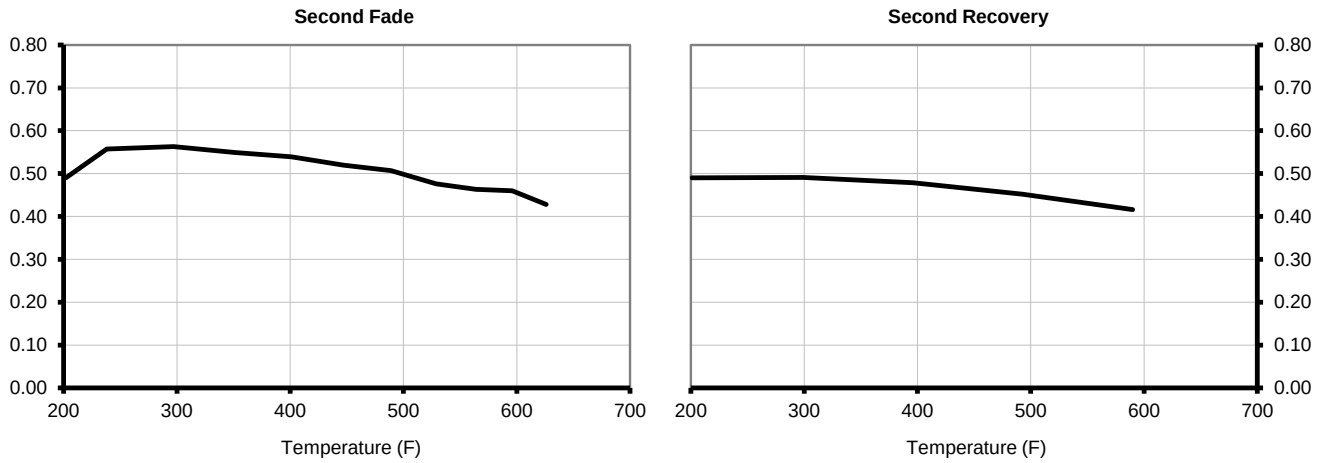
Event	Force (lb)	μ	Temp (°F)
1	63	0.416	590
2	68	0.452	493
3	73	0.479	396
4	74	0.491	299
5	74	0.490	201

26/5/2022
220414-01-A
Sample 1 of 5

Coefficient of Friction







Test Number
220526-02

Customer Reference
C-0064

Normal	**0.558**	**H**
Hot	**0.495**	**G**

26/5/2022
220414-01-B
Sample 2 of 5

Wear

	Initial	Final	Loss		Specific Wear	
Weight (gr)	8.2	7.74	0.46	6%	2.67E-03	gr/hp-hr
Thickness (in)	0.237	0.227	0.01	4%	5.81E-05	in^3/hp-hr

Baseline

	Initial		Final	
Event	Force (lb)	μ	Force (lb)	μ
1	73	0.488	82	0.541
5	78	0.514	85	0.564
10	81	0.532	87	0.574
15	82	0.543	86	0.568
20	82	0.538	86	0.568

Wear

Event	Force (lb)	μ
1	93	0.614
10	82	0.546
20	79	0.526
30	77	0.514
40	77	0.508
50	74	0.489
60	73	0.483
70	76	0.503
80	74	0.489
90	76	0.505
100	75	0.496

First Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	78	0.515	201
30	83	0.554	239
60	87	0.577	296
90	86	0.577	352
120	84	0.561	404
150	81	0.533	451
180	74	0.493	488
210	66	0.439	524
240			
270			
300			
330			
360			
390			
420			
450			
480			
510			
540			
570			
600			

Second Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	84	0.547	202
30	87	0.577	239
60	85	0.565	298
90	83	0.552	350
120	82	0.546	398
150	81	0.539	442
180	81	0.537	484
210	78	0.512	523
240	75	0.488	559
270	68	0.457	591
300	65	0.430	617
330	60	0.407	641
360			
390			
420			
450			
480			
510			
540			
570			
600			

First Recovery

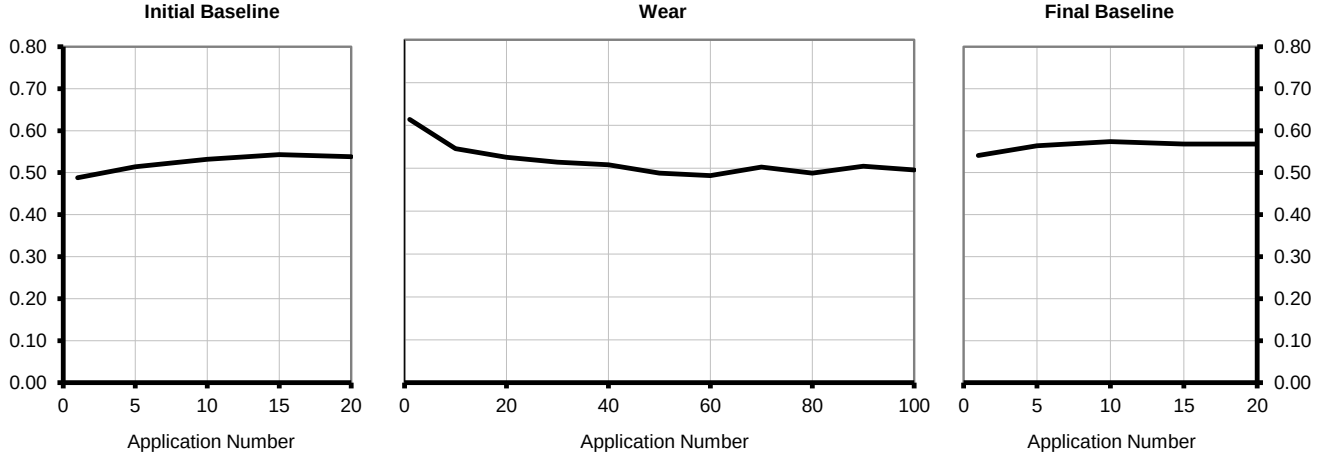
Event	Force (lb)	μ	Temp (°F)
1	71	0.468	489
2	85	0.558	395
3	90	0.594	298
4	86	0.565	200

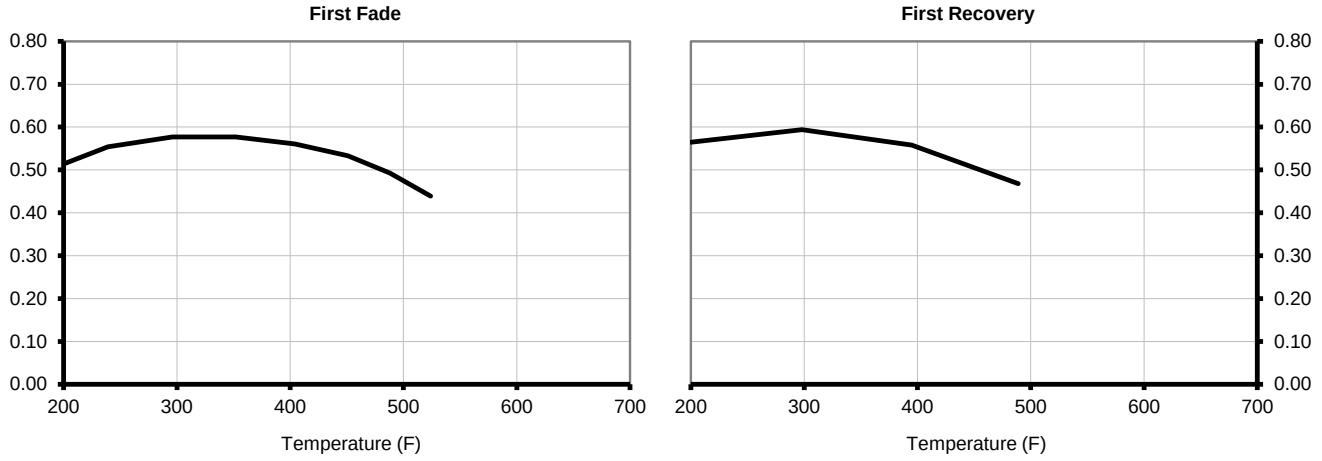
Second Recovery

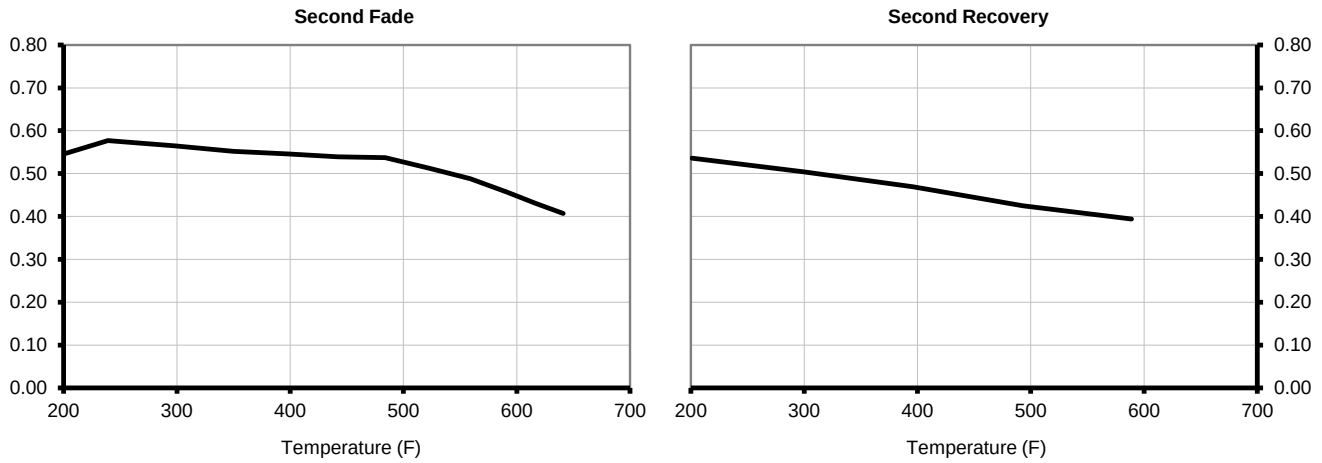
Event	Force (lb)	μ	Temp (°F)
1	60	0.394	589
2	64	0.425	493
3	71	0.469	396
4	76	0.504	299
5	80	0.536	201

26/5/2022
220414-01-B
Sample 2 of 5

Coefficient of Friction







Test Number
220526-02

Customer Reference
C-0064

Normal	**0.547**	**G**
Hot	**0.488**	**G**

26/5/2022
220414-01-C
Sample 3 of 5

Wear

	Initial	Final	Loss		Specific Wear	
Weight (gr)	7.9	7.45	0.45	6%	2.60E-03	gr/hp-hr
Thickness (in)	0.237	0.224	0.013	5%	7.51E-05	in^3/hp-hr

Baseline

	Initial		Final	
Event	Force (lb)	μ	Force (lb)	μ
1	71	0.468	78	0.515
5	81	0.537	84	0.555
10	83	0.553	84	0.554
15	87	0.578	82	0.543
20	95	0.630	81	0.536

Wear

Event	Force (lb)	μ
1	94	0.624
10	83	0.544
20	80	0.528
30	79	0.524
40	79	0.522
50	76	0.501
60	73	0.488
70	73	0.486
80	74	0.484
90	76	0.501
100	77	0.508

First Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	96	0.628	201
30	98	0.654	245
60	95	0.632	307
90	90	0.602	362
120	86	0.575	414
150	81	0.542	462
180	74	0.495	501
210	66	0.437	538
240			
270			
300			
330			
360			
390			
420			
450			
480			
510			
540			
570			
600			

Second Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	77	0.503	201
30	88	0.583	237
60	86	0.572	297
90	83	0.553	351
120	79	0.534	400
150	78	0.518	444
180	74	0.488	485
210	73	0.478	522
240	71	0.470	550
270	67	0.450	583
300	62	0.419	611
330	59	0.392	639
360			
390			
420			
450			
480			
510			
540			
570			
600			

First Recovery

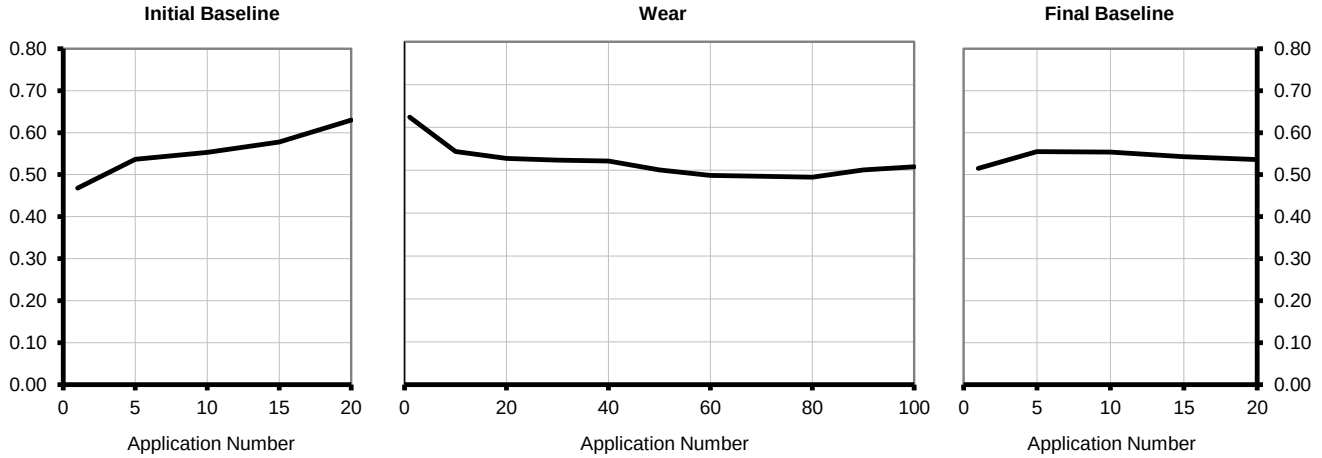
Event	Force (lb)	μ	Temp (°F)
1	80	0.528	490
2	92	0.609	396
3	92	0.608	298
4	90	0.599	201

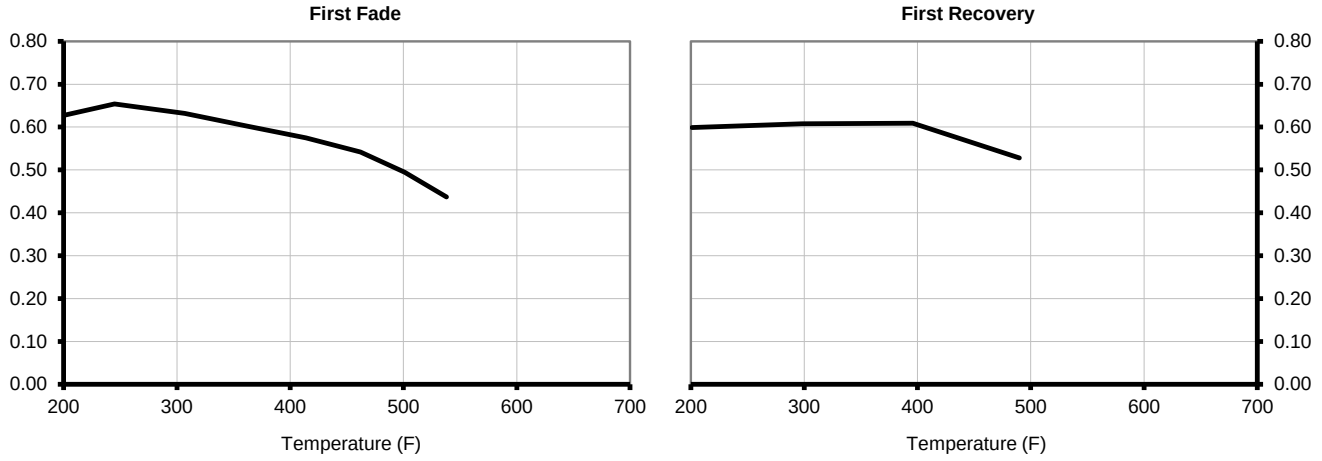
Second Recovery

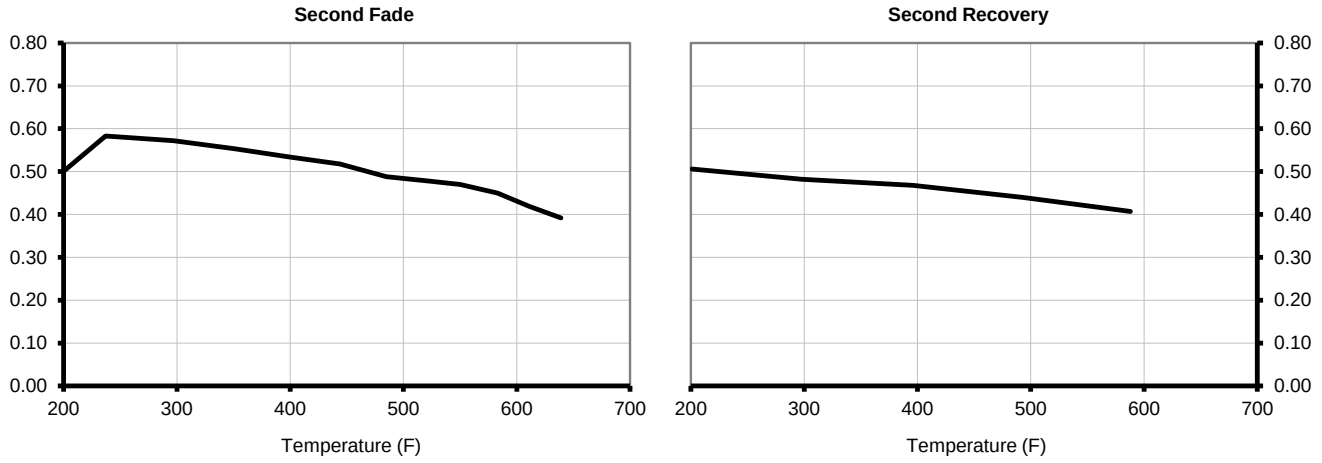
Event	Force (lb)	μ	Temp (°F)
1	61	0.407	588
2	66	0.440	493
3	71	0.468	396
4	73	0.482	298
5	77	0.506	201

26/5/2022
220414-01-C
Sample 3 of 5

Coefficient of Friction







Test Number
220526-02

Customer Reference
C-0064

Normal	**0.529**	**G**
Hot	**0.463**	**G**

26/5/2022
220414-01-D
Sample 4 of 5

Wear

	Initial	Final	Loss		Specific Wear	
Weight (gr)	7.72	7.35	0.37	5%	2.19E-03	gr/hp-hr
Thickness (in)	0.2335	0.222	0.0115	5%	6.80E-05	in^3/hp-hr

Baseline

	Initial		Final	
Event	Force (lb)	μ	Force (lb)	μ
1	67	0.444	76	0.502
5	70	0.462	84	0.549
10	74	0.490	85	0.557
15	78	0.510	84	0.550
20	83	0.550	84	0.557

Wear

Event	Force (lb)	μ
1	80	0.530
10	76	0.501
20	74	0.490
30	76	0.506
40	76	0.506
50	78	0.514
60	78	0.516
70	76	0.508
80	80	0.527
90	77	0.512
100	79	0.527

First Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	78	0.512	201
30	85	0.565	243
60	82	0.545	302
90	78	0.524	355
120	77	0.509	405
150	73	0.483	449
180	69	0.456	489
210	61	0.406	523
240			
270			
300			
330			
360			
390			
420			
450			
480			
510			
540			
570			
600			

Second Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	73	0.476	202
30	85	0.568	237
60	83	0.554	295
90	82	0.547	348
120	78	0.515	395
150	75	0.497	437
180	73	0.493	477
210	72	0.489	514
240	70	0.476	550
270	70	0.459	584
300	66	0.439	614
330	61	0.410	641
360			
390			
420			
450			
480			
510			
540			
570			
600			

First Recovery

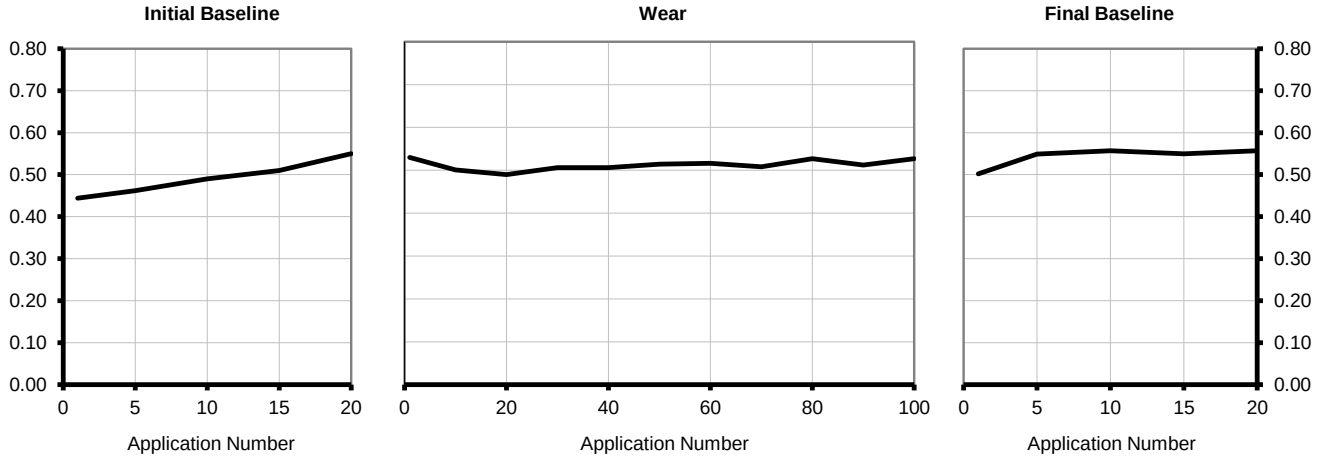
Event	Force (lb)	μ	Temp (°F)
1	59	0.389	489
2	71	0.468	395
3	76	0.502	298
4	71	0.469	200

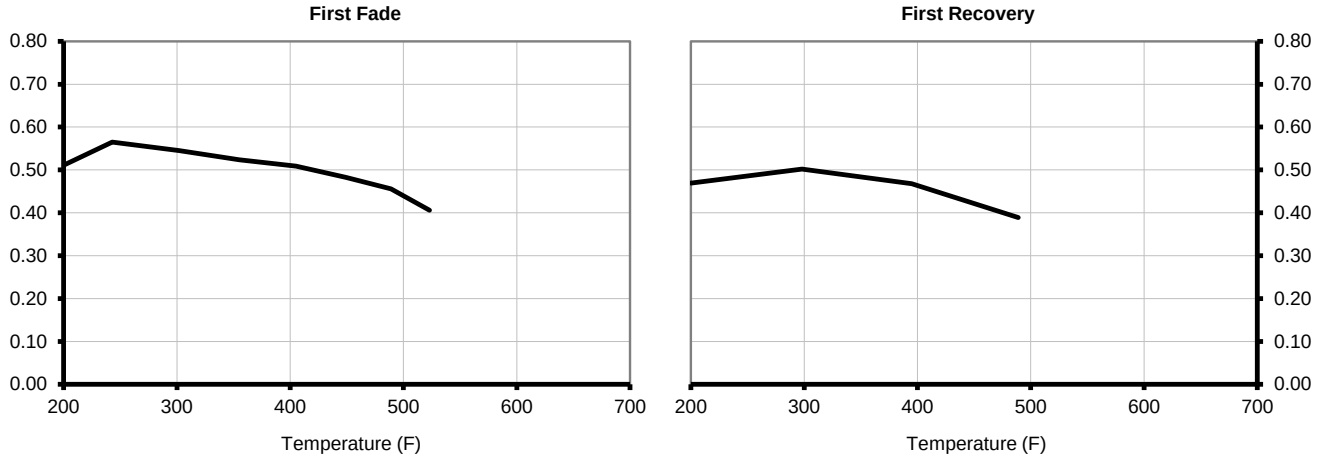
Second Recovery

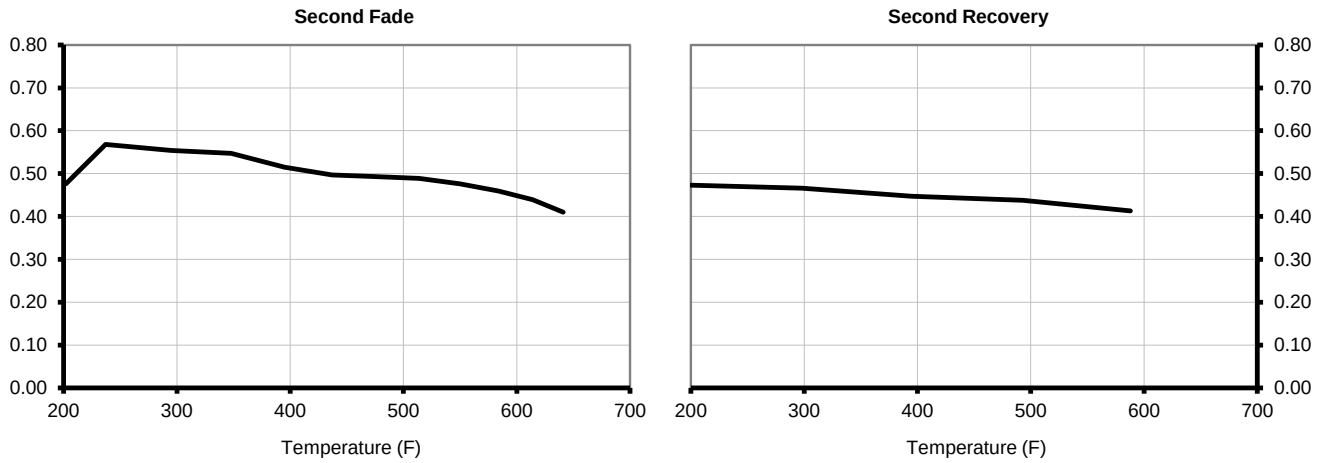
Event	Force (lb)	μ	Temp (°F)
1	62	0.413	588
2	66	0.438	493
3	67	0.447	395
4	70	0.466	298
5	71	0.473	200

26/5/2022
220414-01-D
Sample 4 of 5

Coefficient of Friction







Test Number
220526-02

Customer Reference
C-0064

Normal	**0.552**	**H**
Hot	**0.500**	**G**

27/5/2022
220414-01-E
Sample 5 of 5

Wear

	Initial	Final	Loss		Specific Wear	
Weight (gr)	8.01	7.53	0.48	6%	2.76E-03	gr/hp-hr
Thickness (in)	0.235	0.228	0.007	3%	4.03E-05	in^3/hp-hr

Baseline

	Initial		Final	
Event	Force (lb)	μ	Force (lb)	μ
1	77	0.499	82	0.545
5	82	0.547	86	0.566
10	87	0.576	87	0.567
15	93	0.613	87	0.573
20	97	0.639	86	0.574

Wear

Event	Force (lb)	μ
1	95	0.635
10	82	0.548
20	78	0.523
30	76	0.510
40	76	0.507
50	75	0.499
60	74	0.492
70	73	0.488
80	74	0.489
90	73	0.483
100	75	0.497

First Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	95	0.623	201
30	97	0.642	245
60	93	0.622	306
90	92	0.616	362
120	91	0.603	413
150	87	0.579	461
180	79	0.527	503
210	72	0.483	540
240			
270			
300			
330			
360			
390			
420			
450			
480			
510			
540			
570			
600			

Second Fade

Time (sec)	Force (lb)	μ	Temp (°F)
0	77	0.503	201
30	87	0.581	236
60	88	0.584	296
90	83	0.558	351
120	80	0.532	400
150	79	0.522	444
180	78	0.522	483
210	77	0.512	524
240	73	0.489	557
270	68	0.452	590
300	64	0.424	620
330	59	0.397	646
360			
390			
420			
450			
480			
510			
540			
570			
600			

First Recovery

Event	Force (lb)	μ	Temp (°F)
1	86	0.573	489
2	90	0.599	395
3	93	0.612	298
4	91	0.602	200

Second Recovery

Event	Force (lb)	μ	Temp (°F)
1	62	0.409	588
2	69	0.454	493
3	71	0.472	395
4	75	0.493	298
5	80	0.531	201

27/5/2022
220414-01-E
Sample 5 of 5

Coefficient of Friction