



Physical Properties Test Report

Link Test Report: 260682-01
Test Description: SAE J661-2021

Purpose of Test: To Evaluate the Characteristics of Brake Materials

Material Identification: XBP 1 GG
Test Date: 07/20/2026 - 07/21/2026

Requested By:

International Motor Products, Inc.
宋中宇

Tested By

Testing Coordination and Facility

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SAE J661-2021

Test Information

Customer Name	International Motor Products, Inc.
Requestor	宋中宇
Program Number	J661noinsp.chp
Test Coordinator	Fiona Song
Test Equipment	Chase Machine
Test Dates	07/20/2026 - 07/21/2026
Datalogger	v1.0.23
Template Version	1.83

Setup Details

Sample Material	XBP 1 GG
Sample Size	1 inch x 1 inch
Sample Manufacturer	International Motor Products, Inc.
Test Pressure	150.0 psi

Sample Test Summary

Normal Friction Coefficient	0.452	Pass
Normal Friction Class	G	
Hot Friction Coefficient	0.482	Pass
Hot Friction Class	G	
Minimum Bold Coefficient	0.380	Pass
Max Variation Below Average for Bold Readings	0.022	Pass
Max % Variation for Bold Readings	5.11%	Pass

Pass / Fail

Pass

Comments:

N/A

Created by:	Fiona Song	Signature:		Date	7/21/2026
Reviewed by:	Duel Tang	Signature:		Date	7/21/2026



Test Number

Sample 1 Sample 2 Sample 3 Sample 4 Sample 5
260682-01-A 260682-01-B 260682-01-C 260682-01-D 260682-01-E

Manufacturer:
**International Motor
Products, Inc.**
Material:
XBP 1 GG

Initial Baseline

Application	<u>Sample 1</u>	<u>Sample 2</u>	<u>Sample 3</u>	<u>Sample 4</u>	<u>Sample 5</u>
1	0.314	0.391	0.319	0.362	0.363
20	0.501	0.500	0.475	0.483	0.449

Normal **0.452** **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	0.452	0.487	0.436	0.470	0.426
550.0	0.472	0.509	0.440	0.492	0.446

Hot **0.482** **G**

(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>	Average
500.0	0.516	0.521	0.521	0.526	0.496	0.516
400.0	0.533	0.527	0.545	0.528	0.520	0.531
300.0	0.511	0.501	0.512	0.499	0.495	0.504
200.0	0.476	0.477	0.500	0.469	0.488	0.482

Norm/Hot

Hot

Hot

Wear

Application	<u>Sample 1</u>	<u>Sample 2</u>	<u>Sample 3</u>	<u>Sample 4</u>	<u>Sample 5</u>
1	0.537	0.506	0.534	0.516	0.504
100	0.468	0.472	0.463	0.469	0.478

Second Fade

Temp (°F)	<u>Sample 1</u>	<u>Sample 2</u>	<u>Sample 3</u>	<u>Sample 4</u>	<u>Sample 5</u>	Average	Max Var. < Average	Norm/Hot	% Var
200.0	0.380	0.409	0.386	0.382	0.387	0.389	0.009	Normal	2%
250.0	0.452	0.465	0.481	0.460	0.472	0.466	0.014	Normal	3%
300.0	0.463	0.470	0.484	0.468	0.467	0.470	0.007	Normal	2%
350.0	0.464	0.463	0.493	0.474	0.478	0.474	0.011	-	2%
400.0	0.489	0.477	0.480	0.472	0.492	0.482	0.010	Normal	2%
450.0	0.481	0.464	0.485	0.469	0.467	0.473	0.009	Hot	2%
500.0	0.490	0.489	0.486	0.489	0.497	0.490	0.004	Hot	1%
550.0	0.494	0.493	0.479	0.501	0.492	0.492	0.013	Hot	3%
600.0	0.483	0.475	0.467	0.491	0.469	0.477	0.010	Hot	2%
650.0	0.443	0.443	0.438	0.444	0.422	0.438	0.016	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>	Average	Max Var. < Average	Norm/Hot	% Var
600.0	0.478	0.490	0.485	0.469	0.478	0.480	0.011	-	2%
500.0	0.476	0.477	0.482	0.492	0.481	0.482	0.006	Hot	1%
400.0	0.473	0.466	0.469	0.490	0.470	0.474	0.008	Hot	2%
300.0	0.441	0.452	0.467	0.463	0.456	0.456	0.015	Hot	3%
200.0	0.432	0.405	0.418	0.438	0.441	0.427	0.022	-	5%

Final Baseline

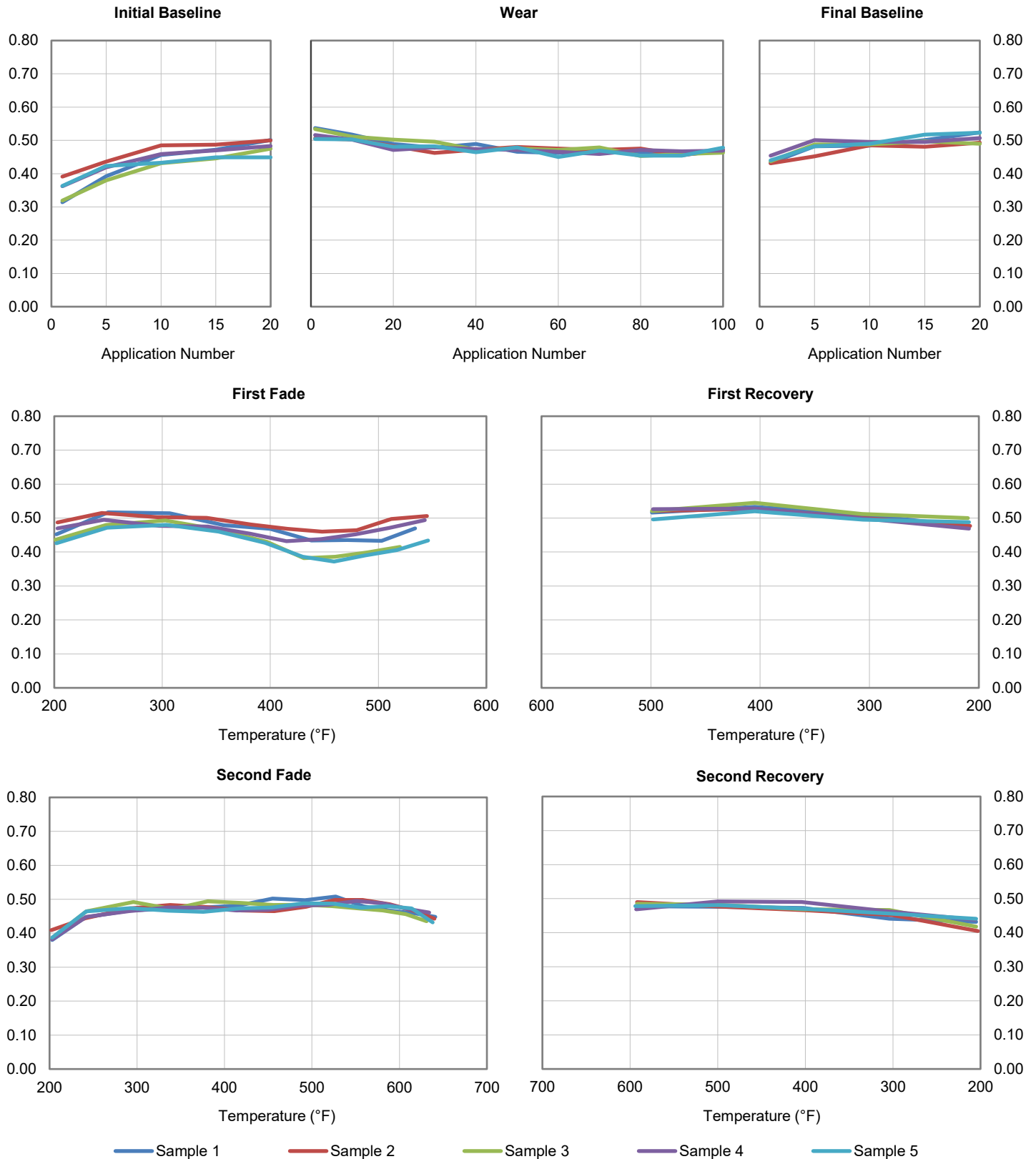
Application	<u>Sample 1</u>	<u>Sample 2</u>	<u>Sample 3</u>	<u>Sample 4</u>	<u>Sample 5</u>
1	0.432	0.431	0.437	0.454	0.440
20	0.524	0.493	0.490	0.507	0.523

Manufacturer: International Motor Products, Inc.
Material: XBP 1 GG
Test Pressure: 150.0 psi

Test Dates: 07/20/2026 - 07/21/2026

Summary of 5 Samples

Coefficient of Friction



Normal 0.446

F

7/20/2026

260682-01-A

Sample 1 of 5

Hot **0.483**

G

Wear

	Initial	Final	Loss	Loss / %
Weight (gr)	7.930	7.500	0.430	5.42
Thickness (inch)	0.236	0.228	0.008	3.39

Baseline

	Initial		Final	
Event	Force (lb)	μ	Force (lb)	μ
1	48.5	0.314	64.6	0.432
5	60.6	0.392	73.1	0.482
10	70.7	0.456	74.3	0.484
15	73.8	0.472	76.2	0.501
20	77.1	0.501	79.3	0.524

Wear

Event	Force (lb)	μ
1	78.3	0.537
10	74.5	0.517
20	71.9	0.489
30	70.4	0.478
40	70.6	0.489
50	68.3	0.466
60	72.5	0.462
70	74.8	0.471
80	72.8	0.463
90	71.0	0.457
100	72.7	0.468

First Fade

[illegible]

Second Fade

[illegible]

First Recovery

Event	Force (lb)	μ	Temp (°F)
1	80.4	0.516	499.0
2	82.5	0.533	405.0
3	79.1	0.511	309.0
4	73.6	0.476	209.0

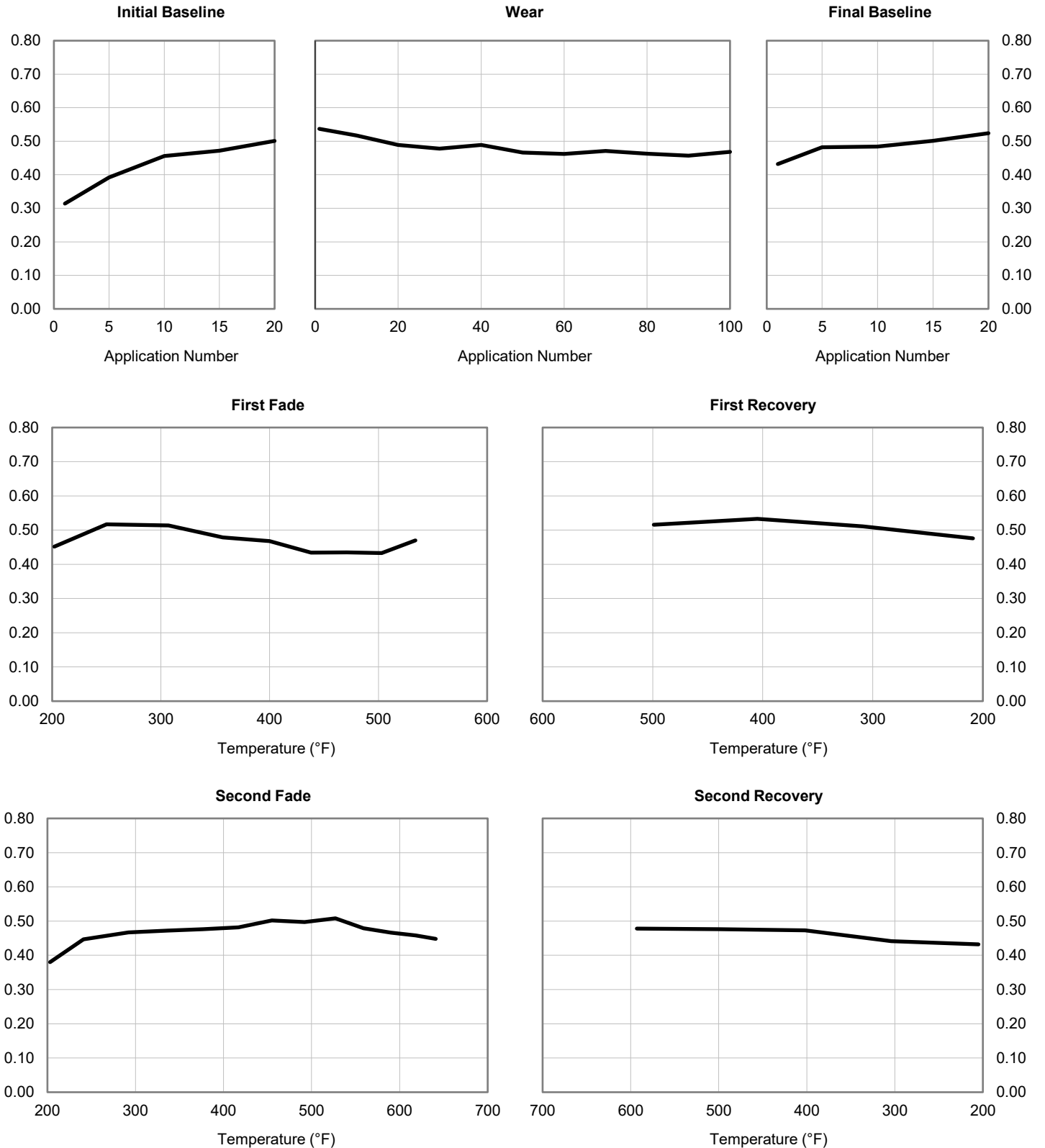
Second Recovery

Event	Force (lb)	μ	Temp ($^{\circ}\text{F}$)
1	72.4	0.478	593.0
2	72.9	0.476	499.0
3	71.2	0.473	402.0
4	67.1	0.441	304.0
5	65.2	0.432	205.0



7/20/2026
260682-01-A
Sample 1 of 5

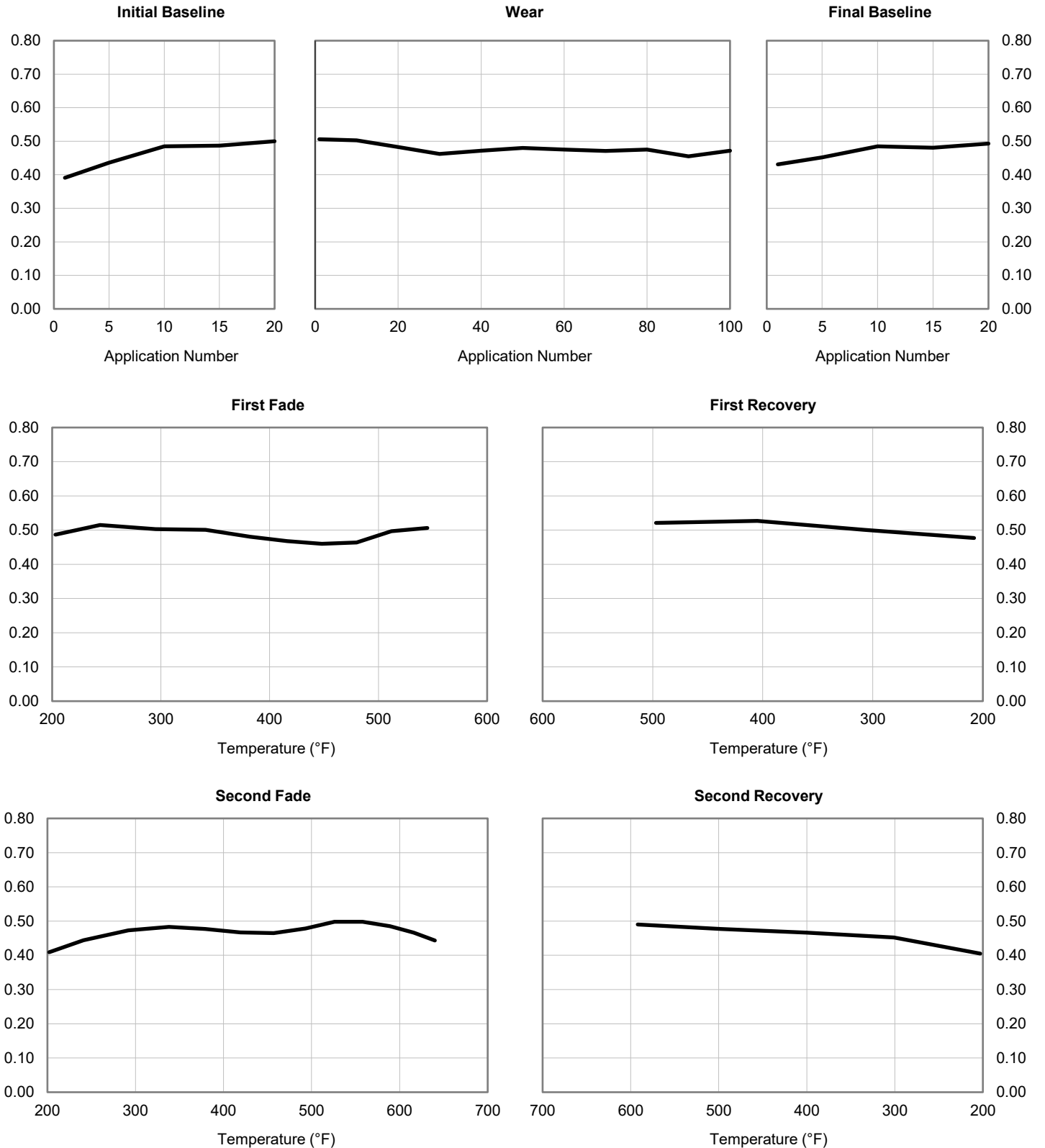
Coefficient of Friction





7/20/2026
260682-01-B
Sample 2 of 5

Coefficient of Friction



Normal	0.458
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G

7/20/2026

260682-01-C

Sample 3 of 5

Hot **0.483**

G

Wear

	Initial	Final	Loss	Loss / %
Weight (gr)	7.820	7.370	0.450	5.75
Thickness (inch)	0.236	0.231	0.005	2.33

Baseline

	Initial		Final	
Event	Force (lb)	μ	Force (lb)	μ
1	48.6	0.319	65.1	0.437
5	57.3	0.380	73.7	0.488
10	65.2	0.431	74.5	0.488
15	68.0	0.446	75.8	0.497
20	72.5	0.475	73.9	0.490

Wear

Event	Force (lb)	μ
1	82.1	0.534
10	77.6	0.511
20	77.1	0.502
30	75.9	0.496
40	72.8	0.472
50	72.7	0.475
60	72.0	0.471
70	73.0	0.479
80	69.9	0.453
90	70.2	0.459
100	70.6	0.463

First Fade

[illegible]

Second Fade

[illegible]

First Recovery

Event	Force (lb)	μ	Temp (°F)
1	79.8	0.521	499.0
2	82.4	0.545	405.0
3	78.5	0.512	307.0
4	74.6	0.500	210.0

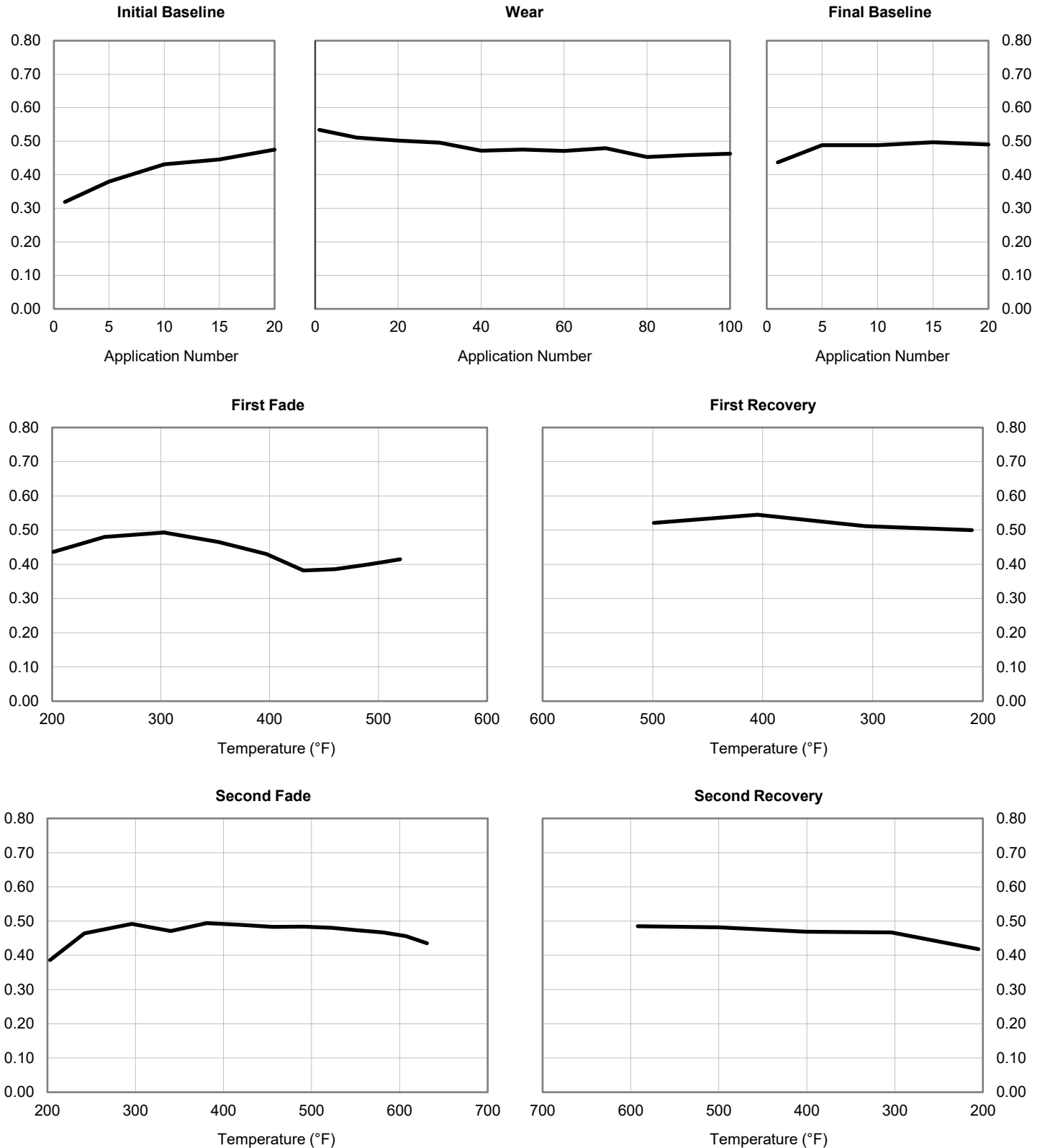
Second Recovery

Event	Force (lb)	μ	Temp (°F)
1	72.1	0.485	592.0
2	72.4	0.482	499.0
3	70.8	0.469	401.0
4	71.0	0.467	304.0
5	63.2	0.418	205.0



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260682-01-C
Sample 3 of 5

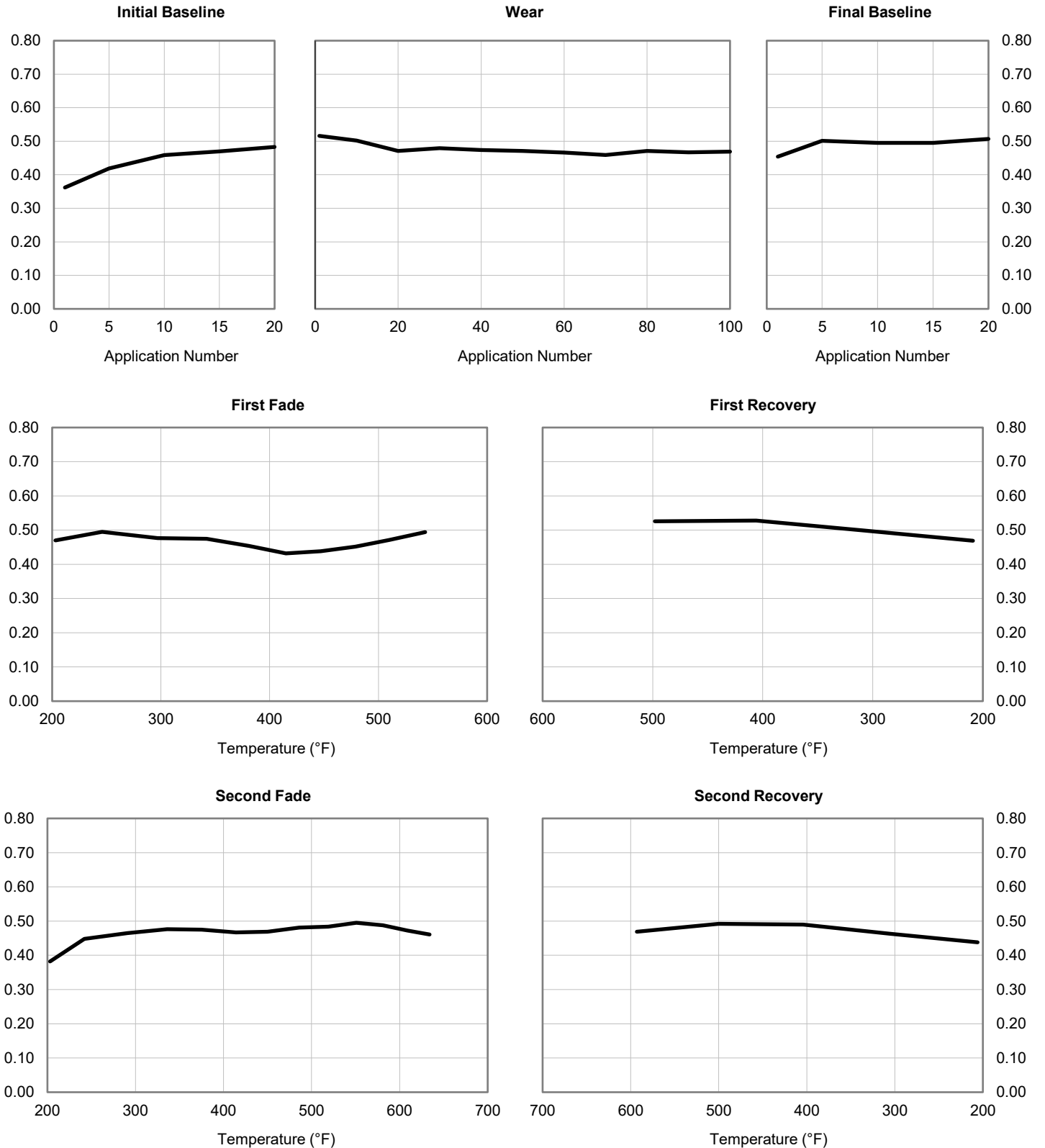
Coefficient of Friction





7/20/2026
260682-01-D
Sample 4 of 5

Coefficient of Friction



Normal **0.455**

G

7/21/2026

260682-01-F

Hot **0.477**

G

Sample 5 of 5

Wear

	Initial	Final	Loss	Loss / %
Weight (gr)	7.770	7.320	0.450	5.79
Thickness (inch)	0.239	0.226	0.013	5.44

Baseline

	Initial		Final	
Event	Force (lb)	μ	Force (lb)	μ
1	55.1	0.363	66.9	0.440
5	64.1	0.423	72.8	0.482
10	66.1	0.433	74.6	0.490
15	68.9	0.449	78.4	0.517
20	68.4	0.449	78.5	0.523

Wear

Event	Force (lb)	μ
1	77.3	0.504
10	77.0	0.503
20	74.5	0.481
30	73.8	0.482
40	71.7	0.464
50	73.0	0.479
60	69.1	0.450
70	71.1	0.469
80	69.2	0.454
90	69.7	0.454
100	72.6	0.478

First Fade

[illegible]

Second Fade

[illegible]

First Recovery

Event	Force (lb)	μ	Temp (°F)
1	76.3	0.496	498.0
2	78.9	0.520	405.0
3	75.9	0.495	306.0
4	73.5	0.488	209.0

Second Recovery

Event	Force (lb)	μ	Temp ($^{\circ}\text{F}$)
1	72.3	0.478	594.0
2	72.6	0.481	498.0
3	71.5	0.470	400.0
4	69.2	0.456	302.0
5	65.5	0.441	205.0



7/21/2026
260682-01-E
Sample 5 of 5

Coefficient of Friction

