



**FRICCIONES  
UNIVERSALES**

## SAE J661 (STABILIZED NOV 2012) Brake Lining Quality Control Test Procedure

Client	Fricciones Universales S.A. Calle Cuenca 678 / 68 0 Villa Lynch - Ptdo. San Martin Buenos Aires - Argentina	Work Order No.	166437
		Test No.	M22-522-23
		Date	23 Jun 16
Formulation	FU- CTR	Technician	M. Richey
Sample	2.16	Prepared By	A. Vernatter

	Sample Mass	Sample Thickness			Indicator	Sample Size		
	grams	inches		average	inches	inches		
Initial	4.5881	0.243	0.245	0.244	0.244	0.000		
Final	4.2841	0.231	0.233	0.225	0.230	-0.026	min	max
Loss	0.3040	0.012	0.012	0.019	0.014		Length	0.993 0.995
Loss %	6.63%				0.026		Width	0.989 0.996

Total Work = 6.662 MJ

Wear Rate = 0.046 g/MJ

FIRST BASELINE			SAE J866 FRICTION CLASSIFICATION			SECOND FADE		
Cycle	Temp °F	μ	Sum	Mean	Class	Minutes	Temp °F	μ
1	197	0.48	Normal	2.19	0.548	0.0	200	0.54
5	199	0.52				0.5	250	0.54
10	197	0.53	Hot	3.81	0.381	1.0	300	0.55
15	197	0.54				1.5	350	0.55
20	190	0.55				2.0	400	0.56
			Pre-Wear Indicator (inches)			2.5	450	0.59
			-0.005			3.1	500	0.58
FIRST FADE			WEAR TEST			3.7	550	0.46
Minutes	Temp °F	μ	Cycle	Temp °F	μ	6.5	600	0.10
0.0	200	0.55	1	390	0.51	10.0	624	0.04
0.5	250	0.55	10	395	0.50	SECOND RECOVERY		
1.0	300	0.53	20	395	0.52	Temp °F    μ		
1.6	350	0.48	30	395	0.54	600	0.09	
2.2	400	0.46	40	395	0.55	500	0.30	H
3.0	450	0.42	50	396	0.56	400	0.53	H
3.8	500	0.39	60	396	0.57	300	0.53	H
4.8	550	0.24	70	396	0.58	200	0.53	
			80	396	0.59	SECOND BASELINE		
FIRST RECOVERY			90	396	0.59	Cycle	Temp °F	μ
Temp °F	μ		100	396	0.59	1	199	0.54
500	0.17		Post-Wear Indicator (inches)			5	200	0.56
400	0.27	H	-0.020			10	201	0.56
300	0.41	H	Wear Sequence Loss (inches)			15	200	0.57
200	0.52		0.015			20	191	0.57

Comments: No unusual noise or performance characteristics observed.

Test Speed = 417 r/min

Test Load = 150 lbf

μ = Friction Coefficient

\* = Temperature not achieved

Temperatures reported at onset of application

Signature *Ann Vernatter*

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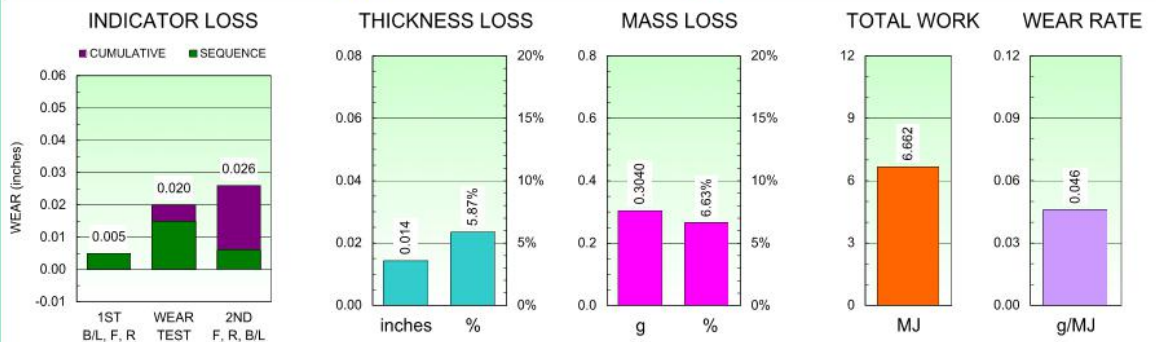
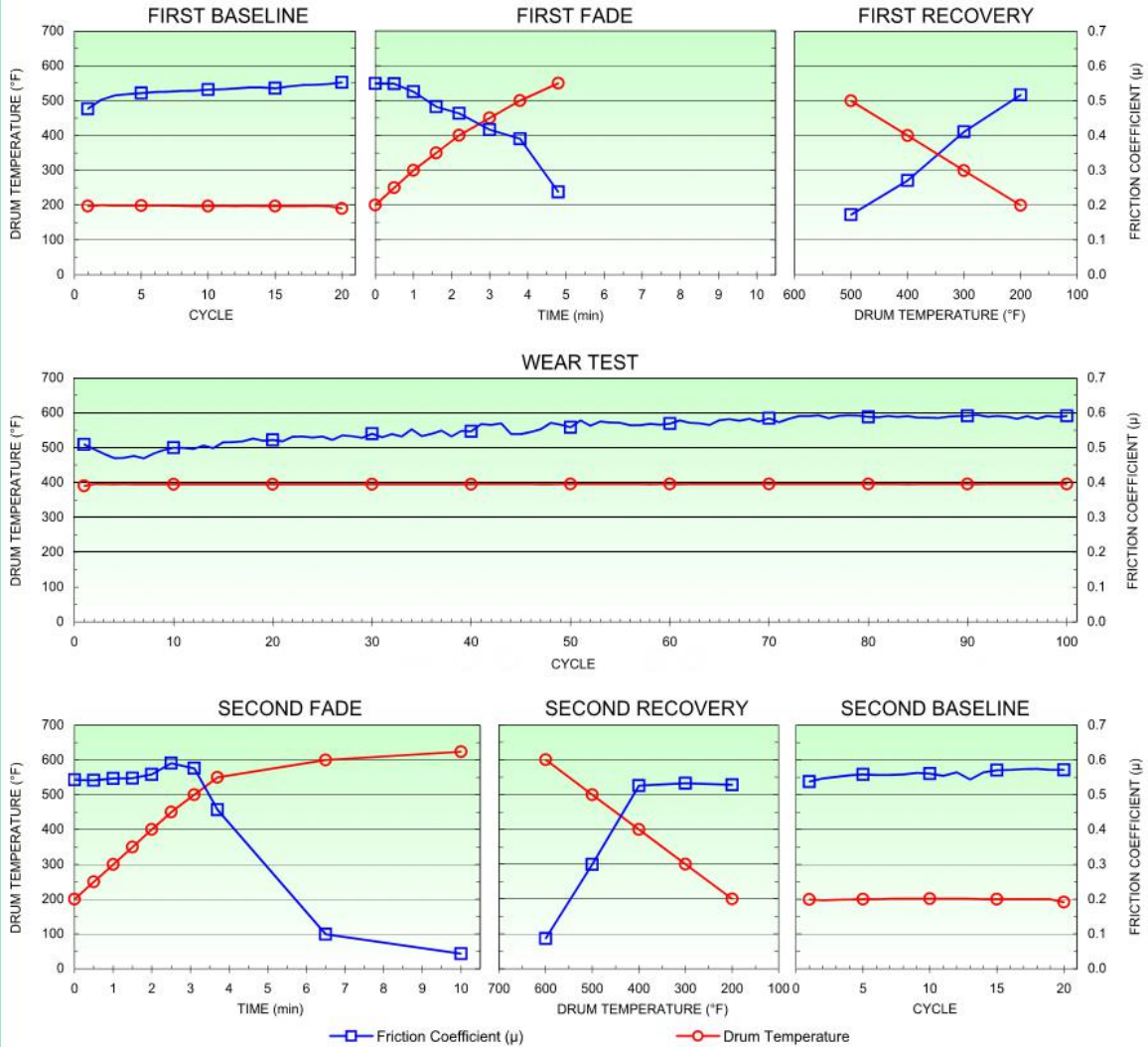
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Client Fricciones Universales S.A.  
Formulation FU-CTR

Work Order No. 166437  
Test No. M22-522-23



**THIRD FADE, RECOVERY AND BASELINE**  
Following SAE J661 Test

Client	Fricciones Universales S.A. Calle Cuenca 678 / 68 0 Villa Lynch - Ptdo. San Martin Buenos Aires - Argentina	Work Order No.	166437
Formulation	FU- CTR	Test No.	M22-522-23
Sample	2.16	Date	23 Jun 16
		Technician	M. Richey
		Prepared By	A. Vernatter

	Sample Mass	Sample Thickness				Indicator	Sample Size	
	grams	inches			average	inches	inches	
Initial	4.2841	0.231	0.233	0.235	0.233	0.000	min	max
Final	4.1705	0.219	0.219	0.214	0.217	-0.008	Length	0.993 0.995
Loss	0.1136	0.012	0.014	0.021	0.016	0.008	Width	0.989 0.996
Loss %	2.65%					6.72%		

Total Work = 1.327 MJ

Wear Rate = 0.086 g/MJ

THIRD FADE			THIRD RECOVERY	
Minutes	Temp °F	μ	Temp °F	μ
0.0	200	0.49	900	*
0.5	250	0.50	800	*
0.9	300	0.51	700	*
1.4	350	0.50	600	0.22
1.9	400	0.50	500	0.43
2.5	450	0.52	400	0.51
3.0	500	0.53	300	0.49
3.6	550	0.53	200	0.47
4.3	600	0.41		
8.8	650	0.06		
20.0	698	0.02		

THIRD BASELINE		
Cycle	Temp °F	μ
1	199	0.49
5	199	0.53
10	201	0.56
15	202	0.57
20	190	0.57

Comments: No unusual noise or performance characteristics observed.

Test Speed = 417 r/min  
 Test Load = 150 lbf  
 μ = Friction Coefficient  
 \* = Temperature Not Achieved

# THIRD FADE, RECOVERY AND BASELINE

## Following SAE J661 Test

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 Formulation    FU-CTR

Work Order No.    166437  
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