REDWOOD
PLASTICS AND RUBBER

Redco™ TIVAR UHMW / PAGE 1

METRIC

Property*	units	Test Method**	TIVAR 1000	TIVAR Marble/ Uniblend	TIVAR 1000 AntiStatic	TIVAR DrySlide
DENSITY	GM/CC	ASTM D-792	0.93	.035 - .945	0.93	0.93
TENSILE PROPERTIES		ASTM D-638				
Yield Strength	PSI (MPa)		3050 (21)	2800 - 3553 (19-26)	3000 (21)	2770 (19)
Tansile at Break	PSI (MPa)		5800 (40)	3600 - 5200 (25-36)	4000 (28)	4815 (33)
Elongation at Break	PERCENT		200	50 - 350	140	200
TENSILE MODULUS	PSI (MPa)	ASTM D-638	120000 (828)	90,100 - 27,500 (621-880)	156900 (1080)	118643 (818)
FLEXURAL MODULUS		ASTM D-790B				
1% Scant	PSI (MPa)		110000 (760)	86,000 - 1,000 (593-696)	100000 (690)	106459 (734)
IMPACT STRENGTH						
Izod Impact		ASTM D-256A	NO BREAK	NO BREAK	NO BREAK	NO BREAK
Tensile Impact	FT-LBS/IN2 (J/m2)	ASTM D-1822	715 (38600)	255-540 (13700-29000)	400 (21500)	653 (35200)
WEAR PROPERTIES						
Sand on Wheel	MG WEIGHT LOSS	ASTM G-64	100	100-250	100	100
Abrasion Index	1018 STEEL=100	SAND SLURRY	10	22-Oct	10	10
COF THERMAL EXPAN-SION		ASTM D-2240				
-30° to + 60°	IN/IN/°C		2 x 10-4	1.8 x 10-4	2 x 10-4	2 x 10-4
-54° to + 140°	IN/IN/°F		1.1 x 10-4	1 x 10-4	1.1 x 10-4	1.1 x 10-4
COF FRICTION		ASTM D-1894				
Polished Steel						
Static			.15 - .20	.15 - .20	.15 - .20	0.15
Kinetic			.10 - .14	.10 - .14	.10 - .14	0.08
HARDNESS	SHORE D	ASTM D-2240	68	64 - 70	68	68
ELECTRICAL PROPERTIES						
Static Decay Time	SECONDS	FTS-101C			<0.1 SEC	
Dielectric Constant		ASTM D-150	2.30 - 2.35			
Dissipation Factor		ASTM D-150	< .5 x 10-3			
Surface Resistivity	OHMS	ASTM D-257	1017	1017	105 - 109	105 - 109
Volume Resistivity	OHMS-CM	ASTM D-257	1017	1017	105 - 109	105 - 109
FDA STANDARDS			YES	NO	NO	NO
TEMPERATURE RANGE		ASTM D-648				
MAXIMUM***						
CONSTANT	°F (°C)		180 (82)	180 (82)	180 (82)	180 (82)
INTERMITTENT	°F (°C)		200 (95)	200 (95)	200 (95)	200 (95)
MINIMUM			N/A	N/A	N/A	N/A

*Values are averages and not specifications
**ASTM test methods are under current procedures
***Maximum operating temperatures may reach 250°F(121°C) under no load conditions for steam cleaning pur poses

METRIC

Property*	Ceram P	TIVAR Oil Filled	TIVAR Cleanstat	TIVAR EXP	TIVAR 1000 PolySteel	TIVAR UV Resistant	TIVAR DS
DENSITY	0.964	0.928	0.94	0.95	1.45	0.93	0.93
TENSILE PROPERTIES							
Yield Strength	2800 (19)	2600 (18)	3075 (21)	2700 (19)	2334 (16)	3000 (21)	3205 (22)
Tansile at Break	3800 26)	6527 (45)	5163 (36)	5280 (36)	2755 (19)	4000 (28)	5990 (41)
Elongation at Break	300	280	200	300	125	140	400
TENSILE MODULUS	130970 (903)	76000 (524)	118900 (820)	101900 (703)	N/A	156900 (1080)	154900 (1070)
FLEXURAL MODULUS							
1% Scant	100000 (690)	63818 (440)	110000 (760)	85000 (586)	110000 (760)	100000 (690)	92390 (637)
IMPACT STRENGTH							
Izod Impact	NO BREAK	NO BREAK	NO BREAK	NO BREAK	NO BREAK	NO BREAK	NO BREAK
Tensile Impact	750 (40500)	1366 (73800)	702 (38000)	343 (18500)	250 (13500)	400 (21500)	1200 (65000)
WEAR PROPERTIES							
Sand on Wheel	85	100	130	91	240	100	90
Abrasion Index	8	12	N/A	9	N/A	10	9
COF THERMAL EXPANSION							
-30° to + 60°	1.6 x 10-4	2 x 10-4	2 x 10-4	1.6 x 10-4	1.8 x 10-4	2 x 10-4	2 x 10-4
-54° to + 140°	0.9 x 10-4	1.1 x 10-4	1.1 x 10-4	0.9 x 10-4	1 x 10-4	1.1 x 10-4	1.1 x 10-4
COF FRICTION							
Polished Steel							
Static	0.18	.20 - .25	0.15	0.2	0.2	.15 - .20	0.18
Kinetic	0.12	.10 - .15	0.12	0.17	0.14	.10 - .14	0.12
HARDNESS	70	68	68	70	64	68	68
ELECTRICAL PROPERTIES							
Static Decay Time						<0.1 SEC	
Dielectric Constant							
Dissipation Factor							
Surface Resistivity	1017	1017	107 - 1010	1017	1017	105 - 109	1015
Volume Resistivity	1017	1017	107 - 1010	1017	1017	105 - 109	1015
FDA STANDARDS	NO	YES	YES	NO	NO	NO	NO
TEMPERATURE RANGE							
MAXIMUM***							
CONSTANT	220 (105)	180 (82)	180 (82)	180 (82)	180 (82)	180 (82)	180 (82)
INTERMITTENT	240 (115)	200 (95)	200 (95)	200 (95)	200 (95)	200 (95)	200 (95)
MINIMUM	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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