REDWOOD
PLASTICS AND RUBBER

Redco™ TIVAR®

PROPERTY*	UNITS	ASTM or UL TEST	TIVAR® H.O.T	TIVAR® CLEANSTAT	TIVAR® EXP	TIVAR® 1000 POLYSTEEL	TIVAR® UV RESISTANT	TIVAR® DS
PHYSICAL								
DENSITY	gm/cc	ASTM D-792	0.94	0.94	0.95	1.45	0.93	0.93
TENSILE PROPERTIES		ASTM D-638						
YIELD STRENGTH	psi		3500	3075	2700	2334	3000	3205
TE NSILE AT BREAK	psi		5800	5163	5280	2755	4000	5990
ELONGATION AT BREAK	percent		300	200	300	125	140	400
TENSILE MODULUS	psi	ASTM D-638	100,000	118,900	101,900	N/A	156,900	154,900
FLEXURAL MODULUS		ASTM D-790B	110,000					
1% SCANT	psi			110,230	85,000	108,750	100,000	92,390
IMPACT STRENGTH								
IZOD IMPACT		ASTM D-256A	NO BREAK	NO BREAK	NO BREAK	NO BREAK	NO BREAK	NO BREAK
TENSILE IMPACT	ft-lbs/in^2	ASTM D-1822		702	343	250	400	1200
WEAR								
SAND ON WHEEL	mg weight loss			130	91	240	100	90
ABRASION INDEX	1018 steel=100		10	N/A	9	N/A	10	9
COEFFICIENT OF FRICTION (DRY vs. STEEL)		QTM55007						
STATIC				0.15	0.2	0.2	.15 - .20	0.18
KINETIC			0.12	0.12	0.17	0.14	.10 - .14	0.12
HARDNESS	shore D		68	68	70	64	68	68
ELECTRICAL/FDA								
STATIC DECAY TIME	seconds	FTS-101C					<0.1	
DIELECTRIC CONSTANT		ASTM D-150	2.3					
DISSIPATION FACTOR		ASTM D-150	.0005					
SURFACE RESISTIVITY	ohms	ASTM D-257	1013	107 - 1010	1017	1017	105 - 109	1015
VOLUME RESISTIVITY	ohms-cm	ASTM D-257	1013	107 - 1010	1017	1017	105 - 109	1015
FDA STANDARDS			YES	YES	NO	NO	NO	NO
TEMPERATURE								
TEMPERATURE RANGE		ASTM D-648						
MAXIMUM**								
CONSTANT	°F		275	180	180	180	180	180
INTERMITTENT	°F			200	250	200	200	200
MINIMUM			N/A	N/A	N/A	N/A	N/A	N/A
COF THERMAL EXPANSION		ASTM D-2240						
-30° to + 60°	in/in/°c			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°	in/in/°f			1.1 x 10-4	0.9 x 10-4	1 x 10-4	1.1 x 10-4	1.1 x 10-4

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PROPERTY*	UNITS	ASTM OR UL TEST	TIVAR® 88 &88-2	TIVAR® 1000	TIVAR® 1000 ANTISTATIC	TIVAR® DRYSLIDE	CERAMP®	TIVAR® OIL FILLED
PHYSICAL								
DENSITY	gm/cc	ASTM D-792	0.93	0.93	0.93	0.93	0.964	0.928
TENSILE PROPERTIES		ASTM D-638						
YIELD STRENGTH	psi		3000	3050	3000	2770	2800	2600
TENSILE AT BREAK	psi		5600	5800	4000	4815	3800	6527
ELONGATION AT BREAK	percent		300	200	140	200	300	280
TENSILE MODULUS	psi	ASTM D-638	102,000	120,000	156,900	118,643	130,970	76,000
FLEXURAL MODULUS		ASTM D-790B						
1% SCANT	psi		102,000	110,000	100,000	106,459	99,933	63,818
IMPACT STRENGTH								
IZOD IMPACT		ASTM D-256A	NO BREAK	NO BREAK	NO BREAK	NO BREAK	NO BREAK	NO BREAK
TENSILE IMPACT	ft-lbs/in^2	ASTM D-1822	N/A	715	400	653	750	1366
WEAR								
SAND ON WHEEL	mg weight loss	ASTM G-64		100	100	100	85	100
ABRASION INDEX	1018 steel=100	SAND SLURRY		10	10	10	8	12
COEFFICIENT OF FRICTION (DRY vs. STEEL)								
STATIC			.12	.15 - .20	.15 - .20	0.15	0.18	.20 - .25
KINETIC				.10 - .14	.10 - .14	0.08	0.12	.10 - .15
HARDNESS	shore D	ASTM D-2240	69	68	68	68	70	68
ELECTRICAL/FDA								
STATIC DECAY TIME	seconds	FTS-101C			<0.1			
DIELECTRIC CONSTANT		ASTM D-150	2.3	2.30 - 2.35				
DISSIPATION FACTOR		ASTM D-150	<.5 x 10-3	<.5 x 10-3				
SURFACE RESISTIVITY	ohms	ASTM D-257	1017	1017	105 - 109	105 - 109	1017	1017
VOLUME RESISTIVITY	ohms-cm	ASTM D-257	1017	1017	105 - 109	105 - 109	1017	1017
FDA STANDARDS			NO	YES	NO	NO	NO	YES
TEMPERATURE								
TEMPERATURE RANGE		ASTM D-648						
MAXIMUM**								
CONSTANT	°F		180	180	180	180	220	180
INTERMITTENT	°F		200	200	200	200	240	200
MINIMUM			N/A	N/A	N/A	N/A	N/A	N/A
COF THERMAL EXPANSION		ASTM D-2240						
-30° to + 60°	in/in/°c		2 x 10-4	2 x 10-4	2 x 10-4	2 x 10-4	1.6 x 10-4	2 x 10-4
-54° to + 140°	in/in/°f		1.1 x 10-4	1.1 x 10-4	1.1 x 10-4	1.1 x 10-4	0.9 x 10-4	1.1 x 10-4

*Values are averages and not specifications
**Maximum operating temperatures may reach 250°F(121°C) under no load conditions for steam cleaning purposes