

VERY FLEXIBLE POLYVINYLIDENE FLUORIDE
2 : 1 Shrink Ratio
FOR USE WITH SUMIMARK III MARKING MACHINE

MILITARY SPECIFICATION



RoHS Compliant



Lead-Free

TYPICAL FEATURES	
<p>1) SUMIMARK SM3-31 is a very flexible, highly flame retarded heat-shrinkable PVDF tubing. SM3 – 31 is specifically designed for use with the Sumimark III marking machine. It is <i>not</i> compatible with earlier Sumimark Model 1 and Model 2 machines.</p> <p>2) SUMIMARK SM3 - 31 is tough and abrasion resistant in mechanical environments and has excellent resistance to solvents.</p> <p>3) The shrink temperature of SUMIMARK SM3- 31 is 90° C.</p>	<p>4) SUMIMARK SM3-31 is recommended for marked tubing applications where the properties of standard PVDF are desirable. Operating temperature range is -55° C to +150° C.</p> <p>5) SUMIMARK SM3-31, when used in conjunction with the Sumimark Marking System, yields marked sleeves that meet or exceed the print permanence requirements of SAE-AS81531.</p> <p>6) SUMIMARK SM3-31 meets or exceeds the requirements of AMS-DTL-23053/18B, Class 3.</p>

STANDARD SIZES						
SIZE	INSIDE DIAMETER AS SUPPLIED (MIN)		INSIDE DIAMETER AFTER RECOVERY (MAX)		WALL THICKNESS AFTER RECOVERY (NOM)	
	INCH	(MM)	INCH	(MM)	INCH	(MM)
3/64	.046	(1.2)	.023	(0.6)	.010	(0.25)
1/16	.063	(1.6)	.031	(0.8)	.010	(0.25)
3/32	.093	(2.4)	.046	(1.2)	.010	(0.31)
1/8	.125	(3.2)	.062	(1.6)	.010	(0.31)
3/16	.187	(4.8)	.093	(2.4)	.010	(0.31)
1/4	.250	(6.4)	.125	(3.2)	.012	(0.36)
3/8	.375	(9.5)	.187	(4.8)	.012	(0.36)
1/2	.500	(12.7)	.250	(6.4)	.012	(0.36)
3/4	.750	(19.1)	.375	(9.5)	.017	(0.43)
1	1.000	(25.4)	.500	(12.7)	.019	(0.48)
Standard Colors: White, (Clear available upon request)						
Standard Package: Spooled (S)						
How to Order: (Type of material) (Size) (Color) (Packaging)						
Example: SM31 1/4 White S						

SM3 - 31 SPECIFICATION VALUES

PROPERTY (UNITS)	TEST METHOD	REQUIREMENT
Physical: Tensile strength (psi) Elongation (%) Specific gravity Low temperature flex (-55°C) Heat shock (250°C, 4 hrs.) Heat resistance (175°C, 168 hrs.) Elongation (%) Secant modulus (psi) Longitudinal change (%)	ASTM D638 ASTM D638 ASTM D792 AMS-DTL-23053 AMS-DTL-23053 ASTM D638 ASTM D882 AMS-DTL-23053	1500 min. 200 min. 2.0 max.. no cracking no cracking 100 min. 2.5 X 10 ⁴ max. ±10
Electrical: Dielectric strength (volts/mil) Volume resistivity (ohm-cm)	ASTM D876 ASTM D876	400 min. 1.0 X 10 ¹¹ min.
Mark Permanence: Abrasion Fluid Resistance Isopropyl Alcohol/Mineral Spirits Terpene Defluxer H2O/PGME/Monoethanolamine	SAE-AS81531 MIL-STD-202F Method 215J	20 rubs 10 rubs (x3) 10 rubs (x3) 10 rubs (x3)
Chemical: Copper stability (180°C 168 hrs.) Elongation (%) Water absorption (%) Fluid resistance (23°C, 24 hrs.) Tensile strength (psi) Flammability Shrink temperature, nominal	UL224 ASTM D570 AMS-DTL-23053 UL 224 VW-1	70% of unaged value min. 0.5 max. 1000 min. Pass 90°C

Specification reference: AMS-DTL-23053/18B, Class 3.
 SAE-AS81531



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Rev. 6/22/06