SUMIMARK® SM60

HIGH TEMPERATURE FLUOROELASTOMER HEAT – SHRINKABLE MARKER SLEEVE

2 : 1 Shrink Ratio

MILITARY SPECIFICATION

RoHS Compliant

TYPICAL FEATURES

1) SUMIMARK SM60 is a highly fluid resistant, flame retarded fluoroelastomer heat-shrinkable marker sleeve tubing that meets all of the material and functional requirements of military specification AMS-DTL-23053/13B.

2) SUMIMARK SM60 is specially designed for use with the SUMIMARK marking system.

3) Shrink temperature is 120°C, far lower than other fluoroelastomer shrink tubing available.

4) SUMIMARK SM60 when used in conjunction with the SUMIMARK Marking System, provides marked sleeves which meet or exceed the print permanence requirements of SAE-AS81531. Sumimark SM60 also meets the stringent outgassing requirements of NASA SP-R-0022A.

5) Operating temperature range is -40°C to +200°C and up to 300°C for short periods.

6) SUMIMARK SM60 is recommended for applications where resistance to aggressive solvents and high temperatures is required. SM60 is ideally suited for high temperature wire and cable markers and identification in applications such as aircraft engine environments.

STANDARD SIZES

<table>
<thead>
<tr>
<th>SIZE</th>
<th>INSIDE DIAMETER AS SUPPLIED (MIN)</th>
<th>INSIDE DIAMETER AFTER RECOVERY (MAX)</th>
<th>WALL THICKNESS AFTER RECOVERY (NOM)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>INCH (MM)</td>
<td>INCH (MM)</td>
<td>INCH (MM)</td>
</tr>
<tr>
<td>1/8</td>
<td>.125 (3.2)</td>
<td>.062 (1.6)</td>
<td>.031 (0.80)</td>
</tr>
<tr>
<td>3/16</td>
<td>.187 (4.8)</td>
<td>.093 (2.4)</td>
<td>.035 (0.90)</td>
</tr>
<tr>
<td>1/4</td>
<td>.250 (6.4)</td>
<td>.125 (3.2)</td>
<td>.035 (0.90)</td>
</tr>
<tr>
<td>3/8</td>
<td>.375 (9.5)</td>
<td>.187 (4.8)</td>
<td>.035 (0.90)</td>
</tr>
<tr>
<td>1/2</td>
<td>.500 (12.7)</td>
<td>.250 (6.4)</td>
<td>.035 (0.90)</td>
</tr>
<tr>
<td>5/8</td>
<td>.625 (15.9)</td>
<td>.312 (7.9)</td>
<td>.042 (1.10)</td>
</tr>
<tr>
<td>3/4</td>
<td>.750 (19.1)</td>
<td>.375 (9.5)</td>
<td>.042 (1.10)</td>
</tr>
<tr>
<td>1</td>
<td>1.000 (25.4)</td>
<td>.500 (12.7)</td>
<td>.049 (1.20)</td>
</tr>
<tr>
<td>1¼</td>
<td>1.250 (31.8)</td>
<td>.625 (15.9)</td>
<td>.055 (1.40)</td>
</tr>
<tr>
<td>1½</td>
<td>1.500 (38.1)</td>
<td>.750 (19.1)</td>
<td>.055 (1.40)</td>
</tr>
</tbody>
</table>

Standard Colors: White & black (other colors available upon request)
Standard Package: Spooled (S)
How to Order: (Type of material) (Size) (Color) (Packaging)
Example: SM60 1/4 Black S
## SM60 Specification Values

<table>
<thead>
<tr>
<th>PROPERTY (UNITS)</th>
<th>TEST METHOD</th>
<th>REQUIREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tensile strength (psi)</td>
<td>ASTM D638</td>
<td>1200 min.</td>
</tr>
<tr>
<td>Elongation (%)</td>
<td>ASTM D638</td>
<td>250 min.</td>
</tr>
<tr>
<td>Tensile Stress @ 200% elongation (psi)</td>
<td>ASTM D412</td>
<td>2000 max.</td>
</tr>
<tr>
<td>Low temperature flex. (-40° C)</td>
<td>AMS-DTL-23053</td>
<td>no cracking</td>
</tr>
<tr>
<td>Heat shock (300° C, 4 hrs.)</td>
<td>AMS-DTL-23053</td>
<td>no cracking</td>
</tr>
<tr>
<td>Heat resistance (250° C, 168 hrs.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elongation (%)</td>
<td>ASTM D638</td>
<td>200 min.</td>
</tr>
<tr>
<td>Tensile strength (psi)</td>
<td>ASTM D638</td>
<td>1200 min.</td>
</tr>
<tr>
<td>Longitudinal change (%)</td>
<td>AMS-DTL-23053</td>
<td>-20 max.</td>
</tr>
<tr>
<td>Electrical:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dielectric strength (volts/mil)</td>
<td>ASTM D876</td>
<td>200 min.</td>
</tr>
<tr>
<td>Volume resistivity (ohm-cm)</td>
<td>ASTM D876</td>
<td>1.0 X 10^{11} min.</td>
</tr>
<tr>
<td>Mark Permanence:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abrasion</td>
<td>SAE-AS81531</td>
<td>20 rubs</td>
</tr>
<tr>
<td>Fluid Resistance</td>
<td>MIL-STD-202F</td>
<td></td>
</tr>
<tr>
<td>Isopropyl Alcohol/Mineral Spirits</td>
<td>Method 215J</td>
<td></td>
</tr>
<tr>
<td>Terpene Defluxer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H2O/PGME/Monoethanolamine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mark Permanence</td>
<td>SAE-AS81531</td>
<td>PASS</td>
</tr>
<tr>
<td>Copper mirror corrosion (175° C, 16 hrs.)</td>
<td>AMS-DTL-23053</td>
<td>no corrosion</td>
</tr>
<tr>
<td>Water absorption (%)</td>
<td>ASTM D570</td>
<td>0.5 max.</td>
</tr>
<tr>
<td>Fluid resistance (23° C, 24 hrs.)</td>
<td>AMS-DTL-23053</td>
<td>1200 min.</td>
</tr>
<tr>
<td>Tensile strength (psi)</td>
<td>AMS-DTL-23053</td>
<td>250 min.</td>
</tr>
<tr>
<td>Elongation (%)</td>
<td>AMS-DTL-23053</td>
<td>15 sec. max.</td>
</tr>
<tr>
<td>Flammability</td>
<td>AMS-DTL-23053</td>
<td>120° C</td>
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<tr>
<td>Shrink temperature, nominal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vacuum Outgassing</td>
<td></td>
<td></td>
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<tr>
<td>TML, %</td>
<td>ASTM-E-595</td>
<td>1.0 max.</td>
</tr>
<tr>
<td>CVCVM, %</td>
<td>ASTM-E-595</td>
<td>0.1 max.</td>
</tr>
</tbody>
</table>

Specification reference: SAE-AS81531
AMS-DTL-23053/13B
NASA SP-R-0022A

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