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400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

SAE AMS-DTL-23053/14

Issued JUL 1999

Insulation Sleeving, Electrical, Heat Shrinkable, Ethylene-Tetrafluoroethylene Fluoropolymer, Semi-Rigid

FSC 5970

NOTICE

This document has been taken directly from U.S. Military Specification MIL-DTL-23053/14B and contains only minor editorial and format changes required to bring it into conformance with the publishing requirements of SAE technical standards. The initial release of this document is intended to replace MIL-DTL-23053/14B. Any part numbers established by the original specification remain unchanged.

The original Military Specification was adopted as an SAE standard under the provisions of the SAE Technical Standards Board (TSB) Rules and Regulations (TSB 001) pertaining to accelerated adoption of government specifications and standards. TSB rules provide for (a) the publication of portions of unrevised government specifications and standards without consensus voting at the SAE Committee level, and (b) the use of the existing government specification or standard format.

Under Department of Defense policies and procedures, any qualification requirements and associated qualified products lists are mandatory for DOD contracts. Any requirement relating to qualified products lists (QPL's) has not been adopted by SAE and is not part of this SAE technical document.

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The requirements for acquiring the sleeving described herein shall consist of this specification sheet and the issue of the following specification listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation: MIL-DTL-23053.

REQUIREMENTS:

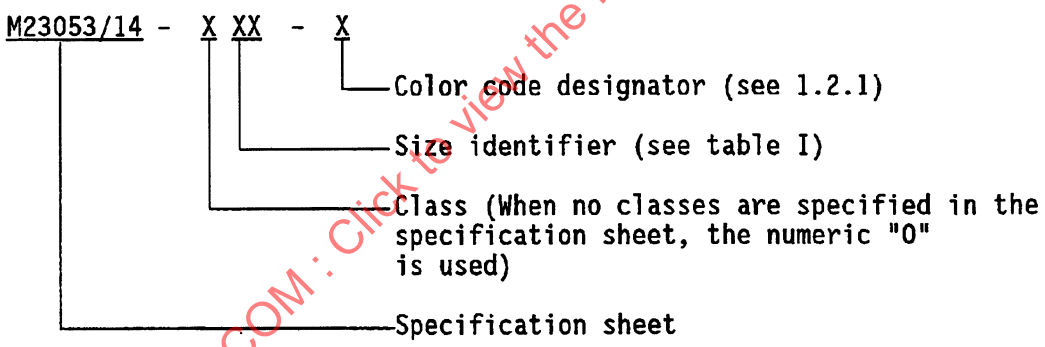
Polymer type: The base polymer used in formulating this sleeving shall be ethylene-tetrafluorethylene fluoropolymer.

Continuous operating temperature range: -100°C (-148°F) to 150°C (302°F).

Color: The sleeving shall be furnished in clear (translucent white to transparent blue), the as manufactured color.

Longitudinal change: ± 10 percent

Military part number: The Military part number shall consist of the basic number of this specification sheet and dash numbers as follows:



Example: 0.500 inch (12.7 mm) as supplied ID ETFE sleeving shall be identified as M23053/14-006-C.

TABLE I. Construction details, inches (mm). 1/

Military part number	As supplied ID minimum	After unrestricted shrinkage ID maximum	After unrestricted shrinkage Wall thickness 2/
M23053/14-001-C	.093 (2.4)	.062 (1.6)	.010 ± .002(.25 ± .05)
M23053/14-002-C	.125 (3.2)	.083 (3.1)	.010 ± .002(.25 ± .05)
M23053/14-003-C	.187 (4.7)	.125 (3.2)	.011 ± .002(.28 ± .05)
M23053/14-004-C	.250 (6.4)	.166 (4.2)	.013 ± .003(.33 ± .08)
M23053/14-005-C	.375 (9.5)	.250 (6.4)	.013 ± .003(.33 ± .08)
M23053/14-006-C	.500 (12.7)	.345 (8.3)	.013 ± .003(.33 ± .08)
M23053/14-007-C	.750 (19.0)	.500 (12.7)	.018 ± .004(.46 ± .10)
M23053/14-008-C	1.000 (25.4)	.665 (16.7)	.022 ± .004(.56 ± .10)
M23053/14-009-C	1.250 (31.8)	.835 (21.2)	.030 ± .004(.80 ± .10)
M23053/14-010-C	1.500 (38.0)	1.000 (25.4)	.030 ± .004(.80 ± .10)

1/ Diameter limits for object to be enclosed shall be as recommended in technical data.

2/ Wall thickness dimensions are less when shrinkage is restricted.

Unrestricted shrinkage: Test method 4.6.5; 175° ± 1°C (347° ± 2°F) for 10 minutes.

TABLE II. Physical properties.

Characteristic	Requirement	Test procedure and conditions
As supplied:		
ID minimum	Table I	4.6.3
Restricted shrinkage	No cracks	4.6.6.12 175° ± 2°C (347° ± 4°F)
Voltage withstand	Pass	4.6.6.2
Clarity stability	Pass	4.6.16 175° ± 1°C (347° ± 2°F), 24 hours

TABLE II. Physical properties. - Continued

Characteristic	Requirement	Test procedure and conditions
After unrestricted shrinkage:		
ID, maximum	Table I	4.6.3
Wall thickness	Table I	4.6.3
Tensile strength, psi (MPa), minimum	6,500 (44.8)	4.6.13 ASTM D638, 20 inches/minute
Ultimate elongation, percent, minimum	200	4.6.13 ASTM D638, 20 inches/minute
Dielectric breakdown volts, minimum	11,000	4.6.2 ASTM D876
Volume resistivity, Ohm-cm, minimum	10^{15}	4.6.2 ASTM D876
Water absorption, percent, maximum	0.1	4.6.2 ASTM D570, 24 hrs. at 23°C
Low temperature flexibility	No cracking	4.6.7.1 -65° ± 1°C (-85°± 2°F)
Heat resistance, properties after:		4.6.9 200° ± 2°C (392° ± 4°F) for 168hours
Tensile strength, psi (MPa), minimum	6,000 (41.4)	
Ultimate elongation, percent, minimum	175	
Dielectric breakdown volts, minimum	10,000	
Specific gravity, maximum	1.73	4.6.2 ASTM D792
Flammability	Self-extinguishing 15 seconds and 3 inches	4.6.14 Procedure A ASTM D2671