



COPPER WIRE, SOFT OR ANNEALED ROUND - HEAVY HIGH TEMPERATURE MODIFIED POLYESTER AND POLYAMIDE INSULATED

ESF-M2L65-A

1. SCOPE

The material defined by this specification is soft or annealed round copper wire insulated with a heavy film of high temperature modified polyester resin having a polyamide overcoat. This is a Class "H" rated insulation.

2. APPLICATION

This specification was released originally for material used for the armature winding on the windshield wiper motors.

3. REQUIREMENTS

3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.4 WIRE SIZE SPECIFICATION

The wire size shall be specified on the engineering drawing and/or release according to the American Wire Gage number desired.

Example: #14 gage ESF-M2L65-A.

3.5 COLOR

The color of the soft or annealed round copper wire insulated with a heavy film of high temperature modified polyester resin having a polyamide overcoat shall be specified on the engineering drawing.

3.6 BARE WIRE

The copper wire used as the base wire shall conform to ESF-M2L1-A, except as noted herein.

3.7 JOINTS

Joints made in the insulated wire shall conform to ESF-M2L1-A and shall be covered with a high temperature modified polyester and polyamide film so as to be equally as well covered as other portions of the wire.

Date	Action	Revisions
2003 06 30	Revised	Para 3.0 inserted; Para 3.1, 3.2, 3.3, 3.22, 4 deleted
1997 07 31	Revised	Rev. para 3.2, 3.5, 3.7-3.16; Updated . N.Vallabhanath
1985 03 20	CF40RD888002262	Released

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3.8 INSULATION COATING AND THICKNESS

The wire shall be coated with a continuous insulating film of high temperature modified polyester having a polyamide overcoat, of such quality as to meet the requirements of this specification. The minimum increase in the diameter of the wire due to the insulating film and the maximum overall diameter shall be as shown in NEMA MW 1000, Part 2, Table H MW 27-C.

The addition to the diameter of the bare wire due to the coating shall be determined utilizing the test method shown in specification NEMA MW 1000.

3.9 INTERMEDIATE SIZES

For wire sizes between the American Wire Gage sizes, the increase in diameter due to the coating shall be the same as for the next smaller Awg size.

3.10 INSULATION ADHESION (NEMA MW 1000, IEC 851)

No cracks in coating

3.11 INSULATION FLEXIBILITY (NEMA MW 1000, IEC 851)

No cracks in coating

3.12 ELONGATION (NEMA MW 1000, IEC 851)

The insulated wire shall meet the requirements of NEMA Table.

3.13 INSULATION SOLUBILITY (NEMA MW 1000, IEC 851)

Insulation shall not soften

3.14 SOFTNESS OF COPPER (NEMA MW 1000, IEC 851)

The insulated wire shall meet the requirements of NEMA Table.

3.15 UNIDIRECTIONAL SCRAPE RESISTANCE (NEMA MW 1000, IEC 851)

The lowest "grams to fail" load, representing failure of the insulating film, in any one of the three tests shall not be less than the minimum value and the average of the three tests shall not be less than the average specified in Table II.

3.16 DIELECTRIC TEST, min (NEMA MW 1000, IEC 851)

79 kV/mm

3.17 CONTINUITY TEST (NEMA MW 1000, IEC 851)

The insulated wire shall meet the requirements of Table II.

3.18 HEAT SHOCK

A sample of coated wire, prepared in accordance with para 3.8, shall be placed in an oven at 220 +/- 2 °C for 1 h. No cracks in the coating shall be visible on size 4 to 40 Awg, when examined with 6X to 10X magnification.