

# PRODUCT DATA SHEET

## NEMA MW 80

Class 155 - Copper and Aluminum - Round Conductors - Polyurethane/Polyamide coated magnet wire / winding wire.

### APPLICATION

SODERON® 155 magnet wire / winding wire is an excellent choice for fine wire applications requiring a Class 155 insulation with soldering capabilities. The product's unique solder stripping properties along with the addition of the nylon topcoat enables SODERON® 155 to be an ideal choice for most winding applications and requirements. The film lends itself to the precise process control required in manufacturing many electrical / electronic devices.

As with all solderable magnet wire, care must be exercised in the application of SODERON® 155 magnet wire / winding wire since this material does not exhibit overload resistance properties like most non-solderable Classes 105, 130 and 155.

SODERON® 155 is recommended but not limited to the following applications:

- Appliance motors
- Automotive coils
- Bobbin wound and paper section coils
- Molded and encapsulated coils
- Relays
- Small motors, armature and fields
- Solenoids
- Timers and clock coils
- Toroidal coils

### ENGINEERING HIGHLIGHTS

#### 1. THERMAL CLASSIFICATION

SODERON® 155 magnet wire is a UL Listed Class 155 material when measured in accordance with the ASTM D2307 test method.

#### 2. THERMOPLASTIC FLOW

Thermoplastic flow (cut-thru) temperature of SODERON® 155 magnet wire is in the 237°C range; well above maximum process conditions found in molded coil work, trickle impregnation processes and standard preheat varnish cycles specified for normal Class 155 systems.

#### 3. SOLDERABILITY

SODERON® 155 magnet wire has excellent soldering properties without the excessive buildup of enamel residue associated with other solderable type resin coatings.

#### 4. WINDABILITY

Flexibility and adhesion properties of the SODERON® 155 magnet wire film, because of its tough nylon topcoat, exceeds most winding applications and requirements.

#### 5. ELECTRICAL

SODERON® 155 magnet wire insulation exhibits high dielectric strength.

#### 6. CHEMICAL

The solvent resistant properties of SODERON® 155 are suitable for most classes 105, 130 and 155 varnishes, encapsulants, and treating resins.

#### 7. NORMAL AVAILABILITY

- Round Copper Sizes:
  - 28-47 AWG, Single Build
  - 28-47 AWG, Heavy Build
- Round Aluminum Sizes
  - 35 AWG & Heavier

Please consult Magnet Wire Marketing for additional size (including metric) and build information.



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Performance data is representative of 36 AWG single build copper. \*\*

## THERMAL PROPERTIES

### HEAT SHOCK RESISTANCE

**TYPICAL PERFORMANCE:** 20%, 1XD @ 175°C, no cracks  
**REQUIRED PERFORMANCE:** 20%, 3XD, no cracks†

### SOLDERABILITY

**TYPICAL PERFORMANCE:** 2.5 seconds @ 390°C  
**REQUIRED PERFORMANCE:** ≤ 3 seconds @ 390°C†

### THERMAL STABILITY

**TYPICAL PERFORMANCE:** 167°C  
**REQUIRED PERFORMANCE:** 155°C minimum†

### THERMOPLASTIC FLOW

**TYPICAL PERFORMANCE:** 237°C  
**REQUIRED PERFORMANCE:** 200°C†

## PHYSICAL PROPERTIES

### ABRASION RESISTANCE: UNIDIRECTIONAL

**TYPICAL PERFORMANCE:** N/A  
**REQUIRED PERFORMANCE:** N/A

### ABRASION RESISTANCE: REPEATED SCRAPE

**TYPICAL PERFORMANCE:** N/A  
**REQUIRED PERFORMANCE:** N/A

### ADHESION AND FLEXIBILITY

**TYPICAL PERFORMANCE:** No topcoat or basecoat cracks  
**REQUIRED PERFORMANCE:** 20%, 3XD, no cracks†

### CONDUCTOR ELONGATION

**TYPICAL PERFORMANCE:** 26%  
**REQUIRED PERFORMANCE:** 20% minimum†

### SPRINGBACK

**TYPICAL PERFORMANCE:** N/A  
**REQUIRED PERFORMANCE:** N/A

## ELECTRICAL PROPERTIES

### CONTINUITY

**TYPICAL PERFORMANCE:** ≤ 0 faults/100 feet @ 350V DC  
**REQUIRED PERFORMANCE:** ≤ 15 faults/100 feet @ 350V DC†

### DIELECTRIC BREAKDOWN VOLTAGE

#### RATED TEMPERATURE

**TYPICAL PERFORMANCE:** 2,696 volts, avg.  
**REQUIRED PERFORMANCE:** 915 volts, minimum†

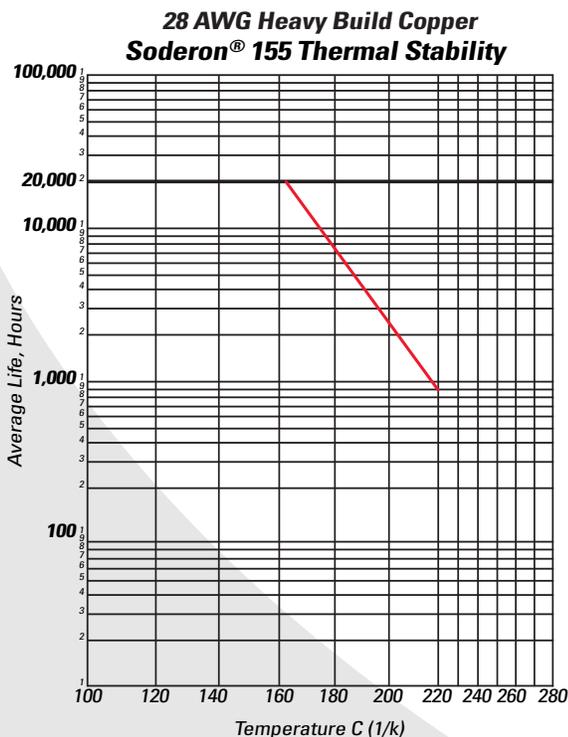
#### ROOM TEMPERATURE

**TYPICAL PERFORMANCE:** 3,780 volts, avg.  
**REQUIRED PERFORMANCE:** 1,220 volts, minimum†

\*\* The values shown represent typical average results and are not intended to be used as design data or specification limits.

† Requirements of NEMA MW 1000; Section MW 80-C.

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