

# PRODUCT DATA SHEET

## **NEMA MW 80**

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

### **APPLICATION**

SODERON® FS/155 fast solder magnet wire is designed to be utilized where the particular coil or component design may utilize the unique solder stripping property. SODERON® FS/155 magnet wire with its improved fast solder polyurethane film, over coated with nylon, surpasses standard Class 130 and 155 in its speed of solderability and can be used in a wide array of wire applications. 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® FS/155 magnet wire since this material does not exhibit overload resistance properties like most non-solderable Classes 105, 130 and 155 resin.

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

- Bobbin wound and paper section coils
- Molded and encapsulated coils
- Small motors, armature and fields
- Automotive coils
- Toroidal coils

### **ENGINEERING HIGHLIGHTS**

#### **1. THERMAL CLASSIFICATION**

SODERON® FS/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® FS/155 magnet wire is 228°C; 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® FS/155 magnet wire solders faster than any other solderable product without the excessive buildup of enamel residue associated with other solderable type resin coatings.

#### **4. WINDABILITY**

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

#### **5. ELECTRICAL**

SODERON® FS/155 magnet wire insulation exhibits high dielectric strength.

#### **6. CHEMICAL**

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

#### **7. NORMAL AVAILABILITY**

- Round Copper Sizes:
  - 10-27 AWG, Single Build
  - 10-27 AWG, Heavy Build
- Round Aluminum Sizes
  - 27 AWG & Heavier

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

# PRODUCT DATA SHEET

Performance data is representative of 18 AWG heavy build copper. \*\*

## THERMAL PROPERTIES

### HEAT SHOCK RESISTANCE

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

### SOLDERABILITY

**TYPICAL PERFORMANCE:** 2 seconds @ 390°C  
**REQUIRED PERFORMANCE:** ≤9 seconds @ 390°C†

### THERMAL STABILITY

**TYPICAL PERFORMANCE:** 167°C (Still Under Test)  
**REQUIRED PERFORMANCE:** 155°C minimum†

### THERMOPLASTIC FLOW

**TYPICAL PERFORMANCE:** 228°C  
**REQUIRED PERFORMANCE:** 200°C†

## PHYSICAL PROPERTIES

### ABRASION RESISTANCE: UNIDIRECTIONAL

**TYPICAL PERFORMANCE:** 1760 g., avg.  
**REQUIRED PERFORMANCE:** 980 g., minimum ,  
1150 g., minimum avg.†

### ABRASION RESISTANCE: REPEATED SCRAPE

**TYPICAL PERFORMANCE:** 250 strokes avg.\*

### ADHESION AND FLEXIBILITY

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

### CONDUCTOR ELONGATION

**TYPICAL PERFORMANCE:** 39%  
**REQUIRED PERFORMANCE:** 32% minimum†

### SPRINGBACK

**TYPICAL PERFORMANCE:** 46 degrees  
**REQUIRED PERFORMANCE:** 58 degrees, maximum†

## ELECTRICAL PROPERTIES

### CONTINUITY

**TYPICAL PERFORMANCE:** ≤ 1 fault/100 feet  
**REQUIRED PERFORMANCE:** <\_ 5 faults/100 feet†

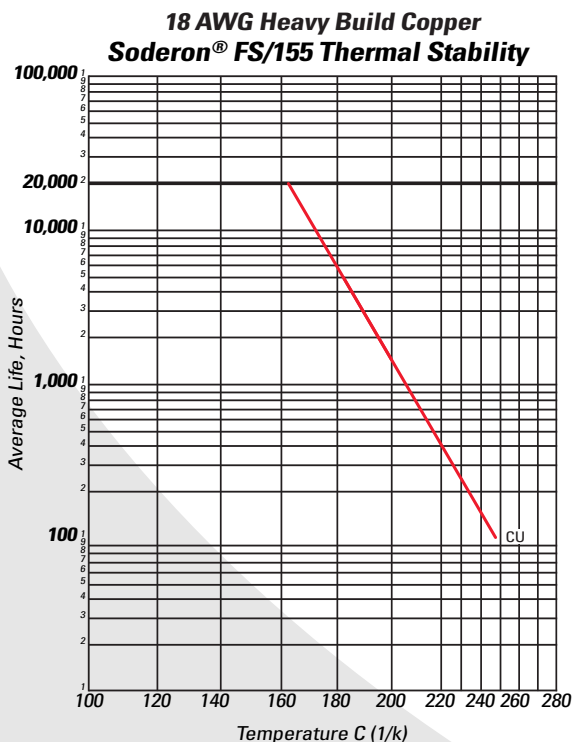
### DIELECTRIC BREAKDOWN VOLTAGE

#### RATED TEMPERATURE

**TYPICAL PERFORMANCE:** 8740 volts, avg.  
**REQUIRED PERFORMANCE:** 3848 volts, minimum†

#### ROOM TEMPERATURE

**TYPICAL PERFORMANCE:** 10,700 volts, avg.  
**REQUIRED PERFORMANCE:** 5130 volts, minimum†



\* Tests not indicated as NEMA are Essex® Standards.

\*\* 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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