

## 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:
  - 10-33.5 AWG only, Single Build
  - 10-33.5 AWG only, Heavy Build
- Round Aluminum Sizes
  - 10-33.5 AWG only

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†

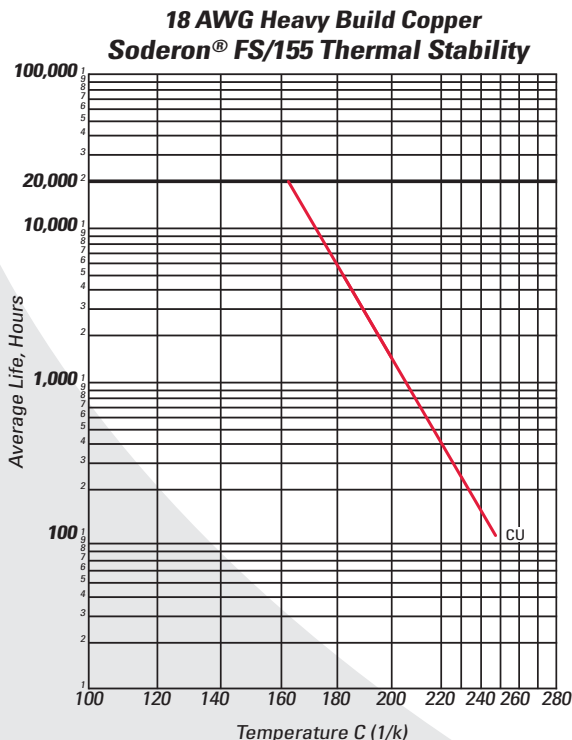
#### DIELECTRIC BREAKDOWN VOLTAGE

##### 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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 1601 Wall Street  
 Fort Wayne, IN 46802  
 260.461.4000  
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