

**NEMA MW 80-C and MW 80-A**

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 (Sizes 7 to 31 AWG) may be considered for 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 D 2307 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. AVAILABILITY**

SODERON® FS/155 magnet wire is **normally** available in round copper sizes 7 through 31 AWG in both single and heavy builds. SODERON® FS/155 magnet wire is **normally** available in round aluminum sizes 26 AWG and heavier.

Please refer additional questions on availability to Essex Magnet Wire Marketing personnel.

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

### THERMAL PROPERTIES

#### SOLDERABILITY

**TYPICAL PERFORMANCE:** 2 seconds @ 430°C  
**REQUIRED PERFORMANCE:** ≤ 10 seconds @ 430°C†

#### THERMOPLASTIC FLOW

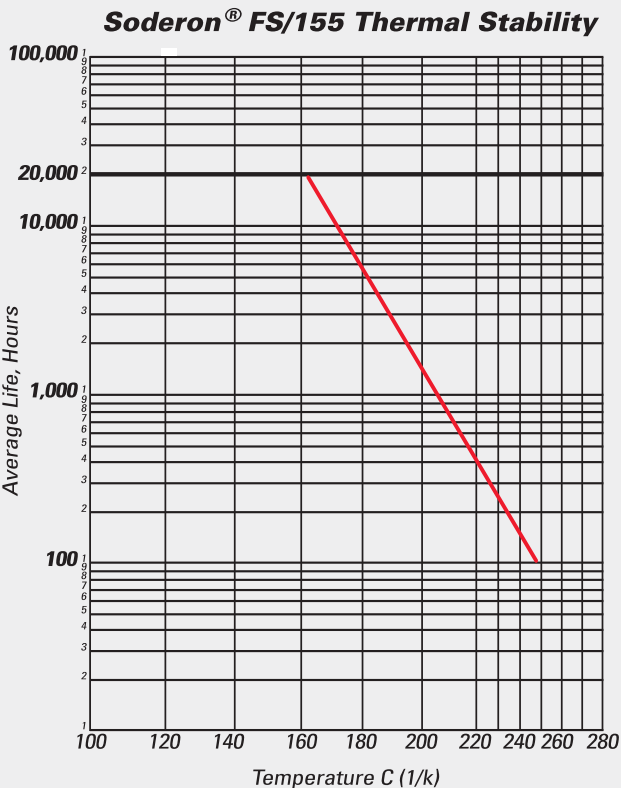
**TYPICAL PERFORMANCE:** 228°C  
**REQUIRED PERFORMANCE:** 200°C†

#### HEAT SHOCK RESISTANCE

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

#### THERMAL STABILITY

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



### PHYSICAL PROPERTIES

#### ABRASION RESISTANCE: UNIDIRECTIONAL

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

#### ADHESION AND FLEXIBILITY

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

#### CONDUCTOR ELONGATION

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

#### SPRINGBACK

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

### ELECTRICAL PROPERTIES

#### DIELECTRIC BREAKDOWN VOLTAGE

##### ROOM TEMPERATURE

**TYPICAL PERFORMANCE:** 10,700 volts, avg.  
**REQUIRED PERFORMANCE:** 5,125 volts, minimum†

##### RATED TEMPERATURE

**TYPICAL PERFORMANCE:** 8740 volts, avg.  
**REQUIRED PERFORMANCE:** 3825 volts, minimum†

#### CONTINUITY - NEMA

**TYPICAL PERFORMANCE:** ≤ 1 fault/100 ft.  
**REQUIRED PERFORMANCE:** ≤ 5 faults/100 ft.†

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

† Requirements of NEMA MW 80-C.

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