Soderon®FS/155 Magnet Wire / Winding Wire
Product and Application Data Sheet

NEMA MW 80-C

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

APPLICATION

SODERON® FS/155 fast solder magnet wire is the newest product in the solderable product line and is to be utilized where the particular coil or component design may utilize the unique solder stripping property.

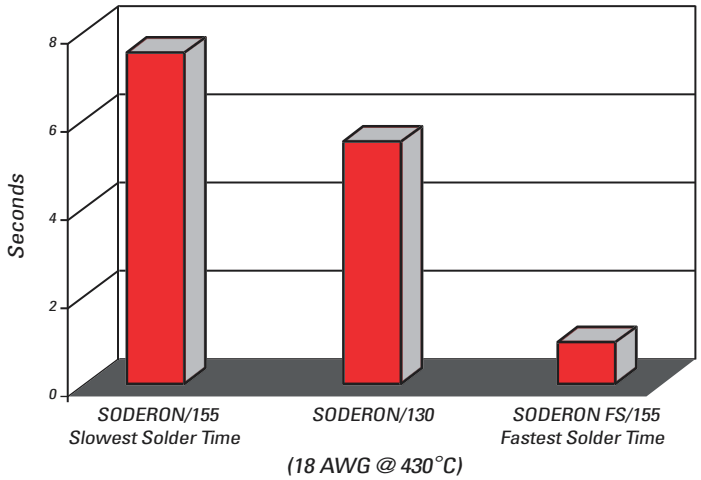
SODERON® FS/155 magnet wire with its improved fast solder polyurethane film, over coated with nylon, surpasses standard Class 155 and 130 in its speed of solderability and can be used in a wide array of wire applications. The film lends itself to the precise process control required in manufacturing wire for many of the electrical/electronic devices and can be used in many electronic designs.

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

SODERON® FS/155 (Sizes 7 to 31 AWG) may be considered for the following applications:

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

Soldering Time Comparison



(18 AWG @ 430˚C)

ENGINEERING HIGHLIGHTS

1. THERMAL CLASSIFICATION

SODERON® FS/155 magnet wire is a Class 155 material when measured in accordance with the ASTM-D 2307 test procedure.

SODERON® FS/155 magnet wire is a UL listed Class 155 Magnet Wire.

2. THERMOPLASTIC FLOW

Thermoplastic flow (cut-thru) temperature of SODERON® FS/155 magnet wire is in the 220°C plus 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® 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 wire winding applications.

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, single and heavy builds.

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

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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†

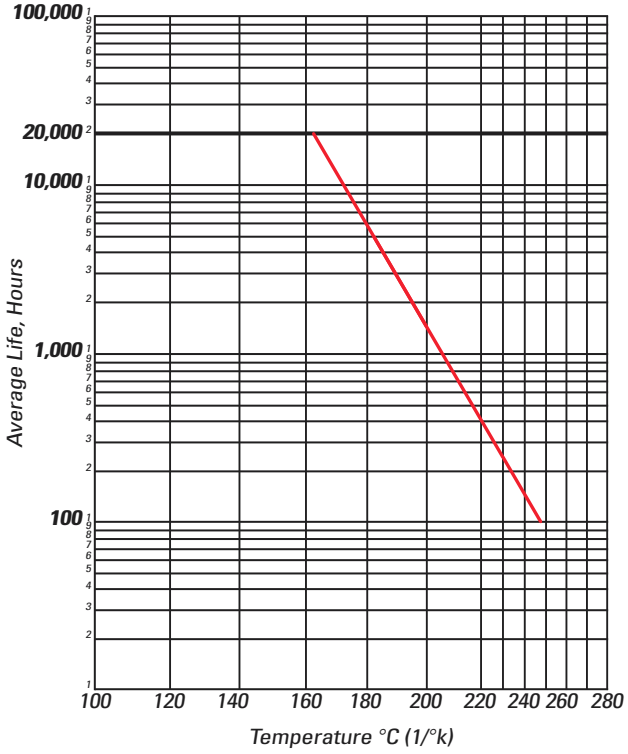
HEAT SHOCK RESISTANCE

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

THERMAL STABILITY

TYPICAL PERFORMANCE: 162°C (Still Under Test)
REQUIRED PERFORMANCE: 155°C minimum†

Soderon® FS/155 Thermal Stability



PHYSICAL PROPERTIES

ABRASION RESISTANCE: UNIDIRECTIONAL

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

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

DIELECTRIC BREAKDOWN VOLTAGE

ROOM TEMPERATURE

TYPICAL PERFORMANCE: 10,700 volts, avg.
REQUIRED PERFORMANCE: 5125 volts, minimum†

RATED TEMPERATURE

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

CONTINUITY

TYPICAL PERFORMANCE: ≤ 1 fault/100 feet
REQUIRED PERFORMANCE: ≤ 5 faults/100 feet†

* 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 80-C