

### NEMA MW 82-C

Class 180 Copper - Round Conductors - Polyurethane coated magnet wire/winding wire.

#### APPLICATION

SODEREX®/180 magnet wire is designed for applications requiring both high thermal resistance and low soldering temperatures.

SODEREX®/180 magnet wire consists of a solder-strippable modified polyurethane film insulation.

Care must be exercised in the application of SODEREX®/180 magnet wire since this material does not exhibit the overload resistance properties of most non-solderable Class 105, 130, 155 and 180 resin systems. SODEREX®/180 is recommended for various end uses such as:

- Encapsulated and molded coils
- Appliance controls and relays
- Automotive controls and relays
- Bobbin wound coils
- Specialty power transformers

#### Solderable Insulation Comparison:

	Salt Water Pinhole Test	Soldering Temperature	Glass Transition Temperature	Thermo-plastic Flow
Soderex®/155 (MW-79)	OK	390°C	Lower	Lower
Soderex®/180 (MW-82)	Better	390°C	Highest	Higher
Solidex® (MW-77)	Poor	470°C	Higher	Highest

#### ENGINEERING HIGHLIGHTS

##### 1. THERMAL CLASSIFICATION

SODEREX®/180 magnet wire is Class 180 when measured in accordance with the ASTM-D2307 test procedure. Heat shock resistance exceeds 200°C.

##### 2. THERMOPLASTIC FLOW

Thermoplastic flow or cut-through temperature of SODEREX®/180 magnet wire is in the 250°C plus range; well above the maximum process conditions found in molded coil work, trickle impregnation processes and standard pre-heat varnish cycles specified for normal Class 130, 155 and 180 systems.

##### 3. SOLDERABILITY

SODEREX®/180 magnet wire solder strips readily and much more easily than MW-77 type products. It solders consistently at temperatures as low as 390°C.

##### 4. WINDABILITY

Flexibility and adhesion properties of the SODEREX®/180 magnet wire film are more than adequate for all but the most severe fine wire winding applications.

##### 5. ELECTRICAL

SODEREX®/180 magnet wire insulation exhibits high dielectric strength retention under high humidity conditions. The low dissipation factor of SODEREX®/180 magnet wire at high frequencies makes it a prime candidate for RF coil applications.

##### 6. CHEMICAL

The solvent resistant properties of SODEREX®/180 are suitable for most classes 105, 130, 155 and 180 varnishes, encapsulants, and treating resins. It has improved salt water resistance compared to other solderable wires.

##### 7. AVAILABILITY

SODEREX®/180 magnet wire is normally available in round copper sizes 25 AWG through 46 AWG, single and heavy builds. Please refer additional questions regarding build and size availability to the Essex Marketing Department.



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

### THERMAL PROPERTIES

#### SOLDERABILITY

**TYPICAL PERFORMANCE:** 1 second @ 390°C  
**REQUIRED PERFORMANCE:** ≤5 seconds @ 390°C†

#### THERMOPLASTIC FLOW

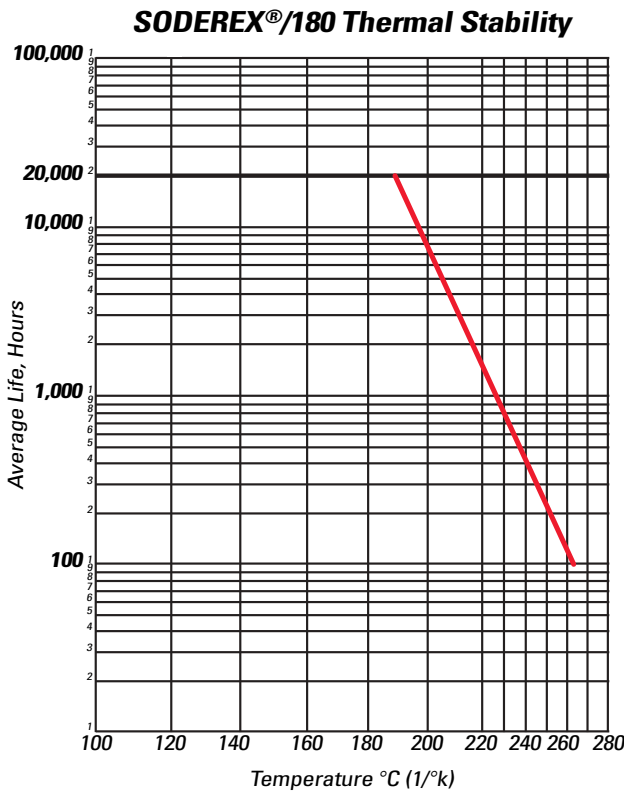
**TYPICAL PERFORMANCE:** 260°C  
**REQUIRED PERFORMANCE:** 225°C†

#### HEAT SHOCK RESISTANCE

**TYPICAL PERFORMANCE:** No cracks @ 200°C  
**REQUIRED PERFORMANCE:** 20%, 3 XD, no cracks†

#### THERMAL STABILITY

**TYPICAL PERFORMANCE:** 193°C  
**REQUIRED PERFORMANCE:** 180°C minimum†



Thermal stability based on 28 AWG heavy build copper.

### PHYSICAL PROPERTIES

#### ADHESION AND FLEXIBILITY

**TYPICAL PERFORMANCE:** No cracks  
**REQUIRED PERFORMANCE:** 20%, 1XD, no cracks†

#### CONDUCTOR ELONGATION

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

### ELECTRICAL PROPERTIES

#### DIELECTRIC BREAKDOWN VOLTAGE

##### ROOM TEMPERATURE

**TYPICAL PERFORMANCE:** 6400 volts, avg.  
**REQUIRED PERFORMANCE:** 2600 volts, minimum†

##### RATED TEMPERATURE

**TYPICAL PERFORMANCE:** 4900 volts, avg.  
**REQUIRED PERFORMANCE:** 1950 volts, minimum†

#### CONTINUITY

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

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

† Requirements of NEMA MW 82-C



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