

# ULTEM™ STM1700 resin

Polyether Imide

SABIC Innovative Plastics

## Message:

Siltem STM1700 is a flexible copolymer designed for wire and cable applications. It offers a halogen free (according VDE 0472) flame retardant solution that also offers low smoke emission and toxicity. It is an amber colored transparent material that can be selfcolored and easily processed on conventional equipment. The material may also have a fit in flexible profiles or injection molded parts.

| General Information                                          |                             |                   |                     |
|--------------------------------------------------------------|-----------------------------|-------------------|---------------------|
| Features                                                     | Low smoke                   |                   |                     |
|                                                              | Low toxicity                |                   |                     |
|                                                              | Copolymer                   |                   |                     |
|                                                              | Good flexibility            |                   |                     |
|                                                              | Halogen-free                |                   |                     |
|                                                              | Flame retardancy            |                   |                     |
| Uses                                                         | Wire and cable applications |                   |                     |
|                                                              | Profile                     |                   |                     |
| RoHS Compliance                                              | RoHS compliance             |                   |                     |
| Appearance                                                   | Transparent amber           |                   |                     |
| Processing Method                                            | Injection molding           |                   |                     |
| Physical                                                     | Nominal Value               | Unit              | Test Method         |
| Specific Gravity                                             | 1.20                        | g/cm <sup>3</sup> | ASTM D792, ISO 1183 |
| Melt Mass-Flow Rate (MFR) (295°C/6.6 kg)                     | 7.0                         | g/10 min          | ASTM D1238          |
| Molding Shrinkage - Flow (3.20 mm)                           | 0.87 - 0.92                 | %                 | Internal method     |
| Water Absorption (Saturation, 23°C)                          | 0.76                        | %                 | ISO 62              |
| Hardness                                                     | Nominal Value               | Unit              | Test Method         |
| Durometer Hardness (Shore D)                                 | 80                          |                   | ASTM D2240          |
| Mechanical                                                   | Nominal Value               | Unit              | Test Method         |
| Tensile Modulus                                              | 2300                        | MPa               | ISO 527-2/1         |
| Tensile Stress                                               |                             |                   | ISO 527-2/50        |
| Yield                                                        | 68.0                        | MPa               | ISO 527-2/50        |
| Fracture                                                     | 59.0                        | MPa               | ISO 527-2/50        |
| Tensile Strain                                               |                             |                   | ISO 527-2/50        |
| Yield                                                        | 5.0                         | %                 | ISO 527-2/50        |
| Fracture                                                     | 15                          | %                 | ISO 527-2/50        |
| Flexural Modulus <sup>1</sup>                                | 2000                        | MPa               | ISO 178             |
| Flexural Stress                                              | 98.0                        | MPa               | ISO 178             |
| Taber Abrasion Resistance (1000 Cycles, 1000 g, CS-17 Wheel) | 50.0                        | mg                | ASTM D1044          |

| Elastomers                                                                    | Nominal Value | Unit              | Test Method  |
|-------------------------------------------------------------------------------|---------------|-------------------|--------------|
| Tear Strength <sup>2</sup> (1.60 mm)                                          | 37            | kN/m              | ISO 34-1     |
| Impact                                                                        | Nominal Value | Unit              | Test Method  |
| Notched Izod Impact <sup>3</sup>                                              |               |                   | ISO 180/1A   |
| -30°C                                                                         | 8.0           | kJ/m <sup>2</sup> | ISO 180/1A   |
| 23°C                                                                          | 16            | kJ/m <sup>2</sup> | ISO 180/1A   |
| Thermal                                                                       | Nominal Value | Unit              | Test Method  |
| Heat Deflection Temperature <sup>4</sup> (0.45 MPa, Unannealed, 64.0 mm Span) | 164           | °C                | ISO 75-2/Bf  |
| Glass Transition Temperature                                                  | 200           | °C                | DSC          |
| Vicat Softening Temperature                                                   | 180           | °C                | ISO 306/B120 |
| Electrical                                                                    | Nominal Value | Unit              | Test Method  |
| Surface Resistivity                                                           | > 1.0E+15     | ohms              | ASTM D257    |
| Volume Resistivity                                                            | > 1.0E+16     | ohms · cm         | ASTM D257    |
| Dielectric Strength (3.20 mm, in Oil)                                         | 17            | kV/mm             | ASTM D149    |
| Dielectric Constant                                                           |               |                   | ASTM D150    |
| 100 Hz                                                                        | 3.13          |                   | ASTM D150    |
| 100 kHz                                                                       | 3.10          |                   | ASTM D150    |
| 1 MHz                                                                         | 3.04          |                   | ASTM D150    |
| Dissipation Factor                                                            |               |                   | ASTM D150    |
| 100 Hz                                                                        | 0.011         |                   | ASTM D150    |
| 100 kHz                                                                       | 6.1E-3        |                   | ASTM D150    |
| 1 MHz                                                                         | 5.4E-3        |                   | ASTM D150    |
| Flammability                                                                  | Nominal Value | Unit              | Test Method  |
| Flame Rating (1.60 mm, Testing by SABIC)                                      | V-0           |                   | UL 94        |
| Oxygen Index                                                                  | 48            | %                 | ASTM D2863   |
| Injection                                                                     | Nominal Value | Unit              |              |
| Drying Temperature                                                            | 105           | °C                |              |
| Drying Time                                                                   | 4.0 - 6.0     | hr                |              |
| Drying Time, Maximum                                                          | 8.0           | hr                |              |
| Suggested Max Moisture                                                        | 0.020         | %                 |              |
| Suggested Shot Size                                                           | 40 - 60       | %                 |              |
| Rear Temperature                                                              | 320 - 330     | °C                |              |
| Middle Temperature                                                            | 320 - 330     | °C                |              |
| Front Temperature                                                             | 320 - 330     | °C                |              |
| Nozzle Temperature                                                            | 320 - 330     | °C                |              |
| Processing (Melt) Temp                                                        | 320 - 330     | °C                |              |
| Mold Temperature                                                              | 110 - 120     | °C                |              |
| Back Pressure                                                                 | 0.300 - 0.700 | MPa               |              |
| Screw Speed                                                                   | 50 - 100      | rpm               |              |
| Vent Depth                                                                    | 0.025 - 0.076 | mm                |              |
| NOTE                                                                          |               |                   |              |

|    |                                |
|----|--------------------------------|
| 1. | 2.0 mm/min                     |
| 2. | Method A, Pant-Shaped Specimen |
| 3. | 80*10*4                        |
| 4. | 80*10*4 mm                     |

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