

# Fortron® 6850L6

Polyphenylene Sulfide

Celanese Corporation

## Message:

Fortron 6850L6 offers the lowest warpage available. The easy flowing nature allows this product to be injection molded into thin walled applications. The excellent balance of mineral and glass fibers result in a superior heat resistance and dimensional stability. This grade is inherently flame-retardant along with high hardness and rigidity. Especially used for thin walled by unfavorable flow length-wall thickness ratio. This is the most isotropic grade available.

| General Information                 |                                      |       |                     |
|-------------------------------------|--------------------------------------|-------|---------------------|
| UL YellowCard                       | E107854-237750                       |       |                     |
| Filler / Reinforcement              | Glass \mineral, 50% filler by weight |       |                     |
| Features                            | Good dimensional stability           |       |                     |
|                                     | Low warpage                          |       |                     |
|                                     | Rigidity, high                       |       |                     |
|                                     | Good liquidity                       |       |                     |
|                                     | Heat resistance, high                |       |                     |
|                                     | High hardness                        |       |                     |
|                                     | Flame retardancy                     |       |                     |
| Uses                                | Thin wall parts                      |       |                     |
| RoHS Compliance                     | Contact manufacturer                 |       |                     |
| Processing Method                   | Injection molding                    |       |                     |
| Physical                            | Nominal Value                        | Unit  | Test Method         |
| Specific Gravity                    | 1.80                                 | g/cm³ | ASTM D792, ISO 1183 |
| Molding Shrinkage                   |                                      |       |                     |
| Flow                                | 0.20 - 0.40                          | %     | ASTM D955           |
| Transverse flow                     | 0.30 - 0.50                          | %     | ASTM D955           |
| Vertical flow direction             | 0.40 - 0.60                          | %     | ISO 294-4           |
| Flow direction                      | 0.30 - 0.60                          | %     | ISO 294-4           |
| Water Absorption (Saturation, 23°C) | 0.020                                | %     | ISO 62              |
| Hardness                            | Nominal Value                        | Unit  | Test Method         |
| Rockwell Hardness                   |                                      |       |                     |
| Class m                             | 96                                   |       | ASTM D785           |
| M scale                             | 96                                   |       | ISO 2039-2          |
| Mechanical                          | Nominal Value                        | Unit  | Test Method         |
| Tensile Modulus                     | 18500                                | MPa   | ISO 527-2/1A/1      |
| Tensile Strength                    |                                      |       |                     |
| Fracture, 23°C                      | 124                                  | MPa   | ASTM D638           |
| Fracture                            | 125                                  | MPa   | ISO 527-2/1A/5      |
| Tensile Elongation                  |                                      |       |                     |
| Fracture, 23°C                      | 1.0                                  | %     | ASTM D638           |

|                                           |                      |                   |                       |
|-------------------------------------------|----------------------|-------------------|-----------------------|
| Fracture                                  | 1.0                  | %                 | ISO 527-2/1A/5        |
| Flexural Modulus (23°C)                   | 16800                | MPa               | ISO 178               |
| Flexural Stress <sup>1</sup>              | 190                  | MPa               | ISO 178               |
| <b>Impact</b>                             | <b>Nominal Value</b> | <b>Unit</b>       | <b>Test Method</b>    |
| Charpy Notched Impact Strength            |                      |                   | ISO 179/1eA           |
| -30°C                                     | 4.0                  | kJ/m <sup>2</sup> | ISO 179/1eA           |
| 23°C                                      | 4.0                  | kJ/m <sup>2</sup> | ISO 179/1eA           |
| Charpy Unnotched Impact Strength          |                      |                   | ISO 179/1eU           |
| -30°C                                     | 16                   | kJ/m <sup>2</sup> | ISO 179/1eU           |
| 23°C                                      | 16                   | kJ/m <sup>2</sup> | ISO 179/1eU           |
| Notched Izod Impact                       |                      |                   | ISO 180/1A            |
| -30°C                                     | 4.0                  | kJ/m <sup>2</sup> | ISO 180/1A            |
| 23°C                                      | 4.0                  | kJ/m <sup>2</sup> | ISO 180/1A            |
| Unnotched Izod Impact Strength (23°C)     | 20                   | kJ/m <sup>2</sup> | ISO 180/1U            |
| <b>Thermal</b>                            | <b>Nominal Value</b> | <b>Unit</b>       | <b>Test Method</b>    |
| Deflection Temperature Under Load         |                      |                   |                       |
| 0.45 MPa, annealed                        | 280                  | °C                | ASTM D648             |
| 1.8 MPa, not annealed                     | 260                  | °C                | ASTM D648             |
| 1.8 MPa, not annealed                     | 270                  | °C                | ISO 75-2/A            |
| 8.0 MPa, not annealed                     | 215                  | °C                | ISO 75-2/C            |
| Glass Transition Temperature <sup>2</sup> | 90.0                 | °C                | ISO 11357-2           |
| Melting Temperature <sup>3</sup>          | 280                  | °C                | ISO 11357-3           |
| Linear thermal expansion coefficient      |                      |                   | ISO 11359-2           |
| Flow                                      | 1.5E-5               | cm/cm/°C          | ISO 11359-2           |
| Lateral                                   | 3.1E-5               | cm/cm/°C          | ISO 11359-2           |
| <b>Electrical</b>                         | <b>Nominal Value</b> | <b>Unit</b>       | <b>Test Method</b>    |
| Surface Resistivity                       | > 1.0E+15            | ohms              | IEC 60093             |
| Volume Resistivity                        |                      |                   |                       |
| --                                        | 1.0E+17              | ohms·cm           | ASTM D257             |
| --                                        | > 1.0E+15            | ohms·cm           | IEC 60093             |
| Dielectric Strength                       | 25                   | kV/mm             | IEC 60243-1           |
| Dielectric Constant                       |                      |                   | ASTM D150             |
| 1 kHz                                     | 0.00100              |                   | ASTM D150             |
| 1 MHz                                     | 9.00E-4              |                   | ASTM D150             |
| Dissipation Factor (1 MHz)                | 1.0E-3               |                   | IEC 60250             |
| Arc Resistance                            | 182                  | sec               | ASTM D495             |
| Comparative Tracking Index                | 225                  | V                 | IEC 60112, ASTM D3638 |
| <b>Flammability</b>                       | <b>Nominal Value</b> | <b>Unit</b>       | <b>Test Method</b>    |
| Flame Rating                              |                      |                   | UL 94                 |
| 0.380 mm                                  | V-0                  |                   | UL 94                 |
| 1.50 mm                                   | V-0                  |                   | UL 94                 |
| <b>Additional Information</b>             | <b>Nominal Value</b> | <b>Unit</b>       | <b>Test Method</b>    |

| Specimen Thickness - Shrinkage                                                                 | 3.18          | mm   | Internal method |
|------------------------------------------------------------------------------------------------|---------------|------|-----------------|
| Injection                                                                                      | Nominal Value | Unit |                 |
| Drying Temperature                                                                             | 130 - 140     | °C   |                 |
| Drying Time                                                                                    | 3.0 - 4.0     | hr   |                 |
| Suggested Max Moisture                                                                         | 0.020         | %    |                 |
| Hopper Temperature                                                                             | 20.0 - 30.0   | °C   |                 |
| Rear Temperature                                                                               | 290 - 300     | °C   |                 |
| Middle Temperature                                                                             | 310 - 320     | °C   |                 |
| Front Temperature                                                                              | 330 - 340     | °C   |                 |
| Nozzle Temperature                                                                             | 310 - 330     | °C   |                 |
| Processing (Melt) Temp                                                                         | 330 - 340     | °C   |                 |
| Mold Temperature                                                                               | 140 - 160     | °C   |                 |
| Injection Pressure                                                                             | 50.0 - 100    | MPa  |                 |
| Injection Rate                                                                                 | Fast          |      |                 |
| Holding Pressure                                                                               | 30.0 - 70.0   | MPa  |                 |
| Back Pressure                                                                                  | 0.00 - 3.00   | MPa  |                 |
| Injection instructions                                                                         |               |      |                 |
| Manifold Temperature: 330 to 340°CZone 4 Temperature: 330 to 340°CFeed Temperature: 60 to 80°C |               |      |                 |
| NOTE                                                                                           |               |      |                 |
| 1.                                                                                             | Break         |      |                 |
| 2.                                                                                             | 10°C/min      |      |                 |
| 3.                                                                                             | 10°C/min      |      |                 |

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