



## Fortron® 6165A4

Celanese Corporation - Polyphenylene Sulfide

Tuesday, November 5, 2019

### General Information

#### Product Description

Fortron 6165A4 offers a unique balance of properties based on a high mineral and glass reinforced composition. The heat resistance under load bearing conditions is excellent for this product. As with all Fortron grades this product is inherently flame-retardant. Applications include electronic components (i.e. lamp houses, connection parts and sockets) and components in industry (i.e. pumps and pistons).

#### General

|                        |                                          |                             |                 |
|------------------------|------------------------------------------|-----------------------------|-----------------|
| Material Status        | • Commercial: Active                     |                             |                 |
| Availability           | • Africa & Middle East<br>• Asia Pacific | • Europe<br>• Latin America | • North America |
| Filler / Reinforcement | • Glass\Mineral                          |                             |                 |
| Features               | • Flame Retardant                        | • Good Heat Resistance      |                 |
| Uses                   | • Connectors                             | • Electrical Parts          | • Pump Parts    |
| RoHS Compliance        | • Contact Manufacturer                   |                             |                 |

### ASTM & ISO Properties<sup>1</sup>

| Physical                            | Nominal Value | Unit                  | Test Method    |
|-------------------------------------|---------------|-----------------------|----------------|
| Density                             | 1.95          | g/cm <sup>3</sup>     | ISO 1183       |
| Molding Shrinkage                   |               |                       | ISO 294-4      |
| Across Flow                         | 0.50          | %                     |                |
| Flow                                | 0.20          | %                     |                |
| Water Absorption (Saturation, 73°F) | 0.020         | %                     | ISO 62         |
| Mechanical                          | Nominal Value | Unit                  | Test Method    |
| Tensile Modulus                     | 2.76E+6       | psi                   | ISO 527-2/1A   |
| Tensile Stress (Break)              | 18900         | psi                   | ISO 527-2/1A/5 |
| Tensile Strain (Break)              | 1.2           | %                     | ISO 527-2/1A/5 |
| Flexural Modulus (73°F)             | 2.73E+6       | psi                   | ISO 178        |
| Flexural Stress                     | 30500         | psi                   | ISO 178        |
| Compressive Modulus                 | 2.68E+6       | psi                   | ISO 604        |
| Impact                              | Nominal Value | Unit                  | Test Method    |
| Charpy Notched Impact Strength      |               |                       | ISO 179/1eA    |
| -22°F                               | 3.3           | ft·lb/in <sup>2</sup> |                |
| 73°F                                | 3.3           | ft·lb/in <sup>2</sup> |                |
| Charpy Unnotched Impact Strength    |               |                       | ISO 179/1eU    |
| -22°F                               | 9.5           | ft·lb/in <sup>2</sup> |                |
| 73°F                                | 9.5           | ft·lb/in <sup>2</sup> |                |
| Notched Izod Impact Strength        |               |                       | ISO 180/1A     |
| -22°F                               | 2.9           | ft·lb/in <sup>2</sup> |                |
| 73°F                                | 2.9           | ft·lb/in <sup>2</sup> |                |
| Unnotched Izod Impact Strength      |               |                       | ISO 180/1U     |
| -22°F                               | 9.5           | ft·lb/in <sup>2</sup> |                |
| 73°F                                | 9.5           | ft·lb/in <sup>2</sup> |                |
| Hardness                            | Nominal Value | Unit                  | Test Method    |
| Rockwell Hardness (M-Scale)         | 100           |                       | ISO 2039-2     |

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| Thermal                                            | Nominal Value | Unit      | Test Method |
|----------------------------------------------------|---------------|-----------|-------------|
| Heat Deflection Temperature (264 psi, Unannealed)  | 518           | °F        | ISO 75-2/A  |
| Heat Deflection Temperature (1160 psi, Unannealed) | 419           | °F        | ISO 75-2/C  |
| Glass Transition Temperature <sup>2</sup>          | 194           | °F        | ISO 11357-2 |
| Melting Temperature <sup>2</sup>                   | 536           | °F        | ISO 11357-3 |
| CLTE - Flow                                        | 1.1E-5        | in/in/°F  | ISO 11359-2 |
| CLTE - Transverse                                  | 1.3E-5        | in/in/°F  | ISO 11359-2 |
| Electrical                                         | Nominal Value | Unit      | Test Method |
| Surface Resistivity                                | > 1.0E+15     | ohms      | IEC 60093   |
| Volume Resistivity                                 | > 1.0E+17     | ohms·cm   | IEC 60093   |
| Electric Strength                                  | 640           | V/mil     | IEC 60243-1 |
| Relative Permittivity (1 MHz)                      | 5.60          |           | IEC 60250   |
| Dissipation Factor (1 MHz)                         | 2.0E-3        |           | IEC 60250   |
| Comparative Tracking Index                         | 175           | V         | IEC 60112   |
| Flammability                                       | Nominal Value | Unit      | Test Method |
| Flame Rating                                       |               |           | UL 94       |
| 0.030 in                                           | V-0           |           |             |
| 0.06 in                                            | V-0           |           |             |
| 0.12 in                                            | 5VA           |           |             |
| Oxygen Index                                       | 53            | %         | ISO 4589-2  |
| Fill Analysis                                      | Nominal Value | Unit      |             |
| Specific Heat Capacity of Melt                     | 0.382         | Btu/lb/°F |             |

### Processing Information

| Injection              | Nominal Value | Unit |
|------------------------|---------------|------|
| Drying Temperature     | 266 to 284    | °F   |
| Drying Time            | 3.0 to 4.0    | hr   |
| Suggested Max Moisture | 0.020         | %    |
| Hopper Temperature     | 68 to 86      | °F   |
| Rear Temperature       | 554 to 572    | °F   |
| Middle Temperature     | 590 to 608    | °F   |
| Front Temperature      | 626 to 644    | °F   |
| Nozzle Temperature     | 590 to 626    | °F   |
| Processing (Melt) Temp | 626 to 644    | °F   |
| Mold Temperature       | 284 to 320    | °F   |
| Injection Rate         | Fast          |      |
| Back Pressure          | < 435         | psi  |

### Injection Notes

Feeding zone temperature: 60 to 80°C  
 Zone4 temperature: 330 to 340°C  
 Hot runner temperature: 330 to 340°C

### Notes

<sup>1</sup> Typical properties: these are not to be construed as specifications.

<sup>2</sup> 10°C/min