



**Product Data Sheet &  
General Processing Conditions**

**RTP 681 FR  
Acrylonitrile Butadiene Styrene  
(ABS)  
Carbon Fiber  
Flame Retardant**

The RTP 680 FR Series offers a good combination of physical properties, stiffness, ignition resistance and the ability to be fabricated to close dimensional tolerances.

**PROPERTIES & AVERAGE VALUES OF INJECTION MOLDED SPECIMENS**

| <b>PERMANENCE</b>               | <b>English</b>        | <b>SI Metric</b> | <b>ASTM<br/>TEST</b> |
|---------------------------------|-----------------------|------------------|----------------------|
| Primary Additive                | 10 %                  | 10 %             |                      |
| Specific Gravity                | 1.24                  | 1.24             | D 792                |
| Molding Shrinkage               |                       |                  |                      |
| 1/8 in (3.2 mm) section         | 0.0010 - 0.0020 in/in | 0.10 - 0.20 %    | D 955                |
| Water Absorption, 24 hrs @ 23°C | 0.180 %               | 0.180 %          | D 570                |

**MECHANICAL**

|                                   |                            |             |        |
|-----------------------------------|----------------------------|-------------|--------|
| Impact Strength, Izod             |                            |             |        |
| notched 1/8 in (3.2 mm) section   | 1.0 ft-lbs/in              | 53 J/m      | D 256  |
| unnotched 1/8 in (3.2 mm) section | 5.0 ft-lbs/in              | 267 J/m     | D 4812 |
| Tensile Strength                  | 15000 psi                  | 103 MPa     | D 638  |
| Tensile Elongation                | 1.0 - 2.0 %                | 1.0 - 2.0 % | D 638  |
| Tensile Modulus                   | 1.40 x 10 <sup>6</sup> psi | 9653 MPa    | D 638  |
| Flexural Strength                 | 20000 psi                  | 138 MPa     | D 790  |
| Flexural Modulus                  | 1.30 x 10 <sup>6</sup> psi | 8964 MPa    | D 790  |

**ELECTRICAL**

|                    |              |              |       |
|--------------------|--------------|--------------|-------|
| Volume Resistivity | < 1E5 ohm.cm | < 1E5 ohm.cm | D 257 |
|--------------------|--------------|--------------|-------|

**THERMAL**

|                        |               |              |        |
|------------------------|---------------|--------------|--------|
| Deflection Temperature |               |              |        |
| @ 264 psi (1820 kPa)   | 220 °F        | 104 °C       | D 648  |
| @ 66 psi (455 kPa)     | 225 °F        | 107 °C       | D 648  |
| Ignition Resistance*   |               |              |        |
| Flammability**         | V-0 @ 1/16 in | V-0 @ 1.5 mm | D 3801 |

**PROPERTY NOTES**

Data herein is typical and not to be construed as specifications.

Unless otherwise specified, all data listed is for natural or black colored materials. Pigments can affect properties.

\* This rating is not intended to reflect hazards of this or any other material under actual fire conditions.

\*\* Values per RTP Company testing.

**GENERAL PROCESSING FOR INJECTION MOLDING**

|                    | <b>English</b>    | <b>SI Metric</b> |
|--------------------|-------------------|------------------|
| Injection Pressure | 10000 - 15000 psi | 69 - 103 MPa     |
| Melt Temperature   | 400 - 460 °F      | 204 - 238 °C     |
| Mold Temperature   | 145 - 185 °F      | 63 - 85 °C       |
| Drying             | 2 hrs @ 180 °F    | 2 hrs @ 82 °C    |
| Moisture Content   | 0.10 %            | 0.10 %           |
| Dew Point          | 0 °F              | -18 °C           |

**PROCESSING NOTES**

Desiccant Type Dryer Required.