

RITEFLEX® 663 | TPC | Unfilled

Description

Riteflex 663 is a nominal 63 Shore D thermoplastic polyester elastomer with medium modulus.

| Physical properties | Value | Unit | Test Standard |
|---------------------------|----------------|-------------------|---------------|
| Density | 1240 | kg/m ³ | ISO 1183 |
| Melt flow rate (MFR) | 19 | g/10 min | ISO 1133 |
| MFR test temperature | 240 | °C | ISO 1133 |
| MFR test load | 2.16 | kg | ISO 1133 |
| Mold shrinkage - parallel | 1.7-2.0 | % | ISO 294-4 |
| Mold shrinkage - normal | 1.7-2.1 | % | ISO 294-4 |

| Mechanical properties | Value | Unit | Test Standard |
|---|--------------------|-------------------|---------------|
| Tensile modulus (1mm/min) | 350 | MPa | ISO 527-2/1A |
| Tensile stress at yield (50mm/min) | 22 | MPa | ISO 527-2/1A |
| Tensile strain at yield (50mm/min) | 44 | % | ISO 527-2/1A |
| Nominal strain at break (50mm/min) | >50 | % | ISO 527-2/1A |
| Tensile stress at 50% strain (50mm/min) | 21 | MPa | ISO 527-2/1A |
| Tensile stress at break (50mm/min) | 38 | MPa | ISO 527-2/1A |
| Flexural modulus (23°C) | 325 | MPa | ISO 178 |
| Flexural modulus (-40°C) | 1900 | MPa | ISO 178 |
| Flexural strength (23°C) | 17.5 | MPa | ISO 178 |
| Charpy impact strength @ 23°C | NB | kJ/m ² | ISO 179/1eU |
| Charpy impact strength @ -30°C | NB | kJ/m ² | ISO 179/1eU |
| Charpy notched impact strength @ 23°C | 105p | kJ/m ² | ISO 179/1eA |
| Charpy notched impact strength @ -30°C | 22 | kJ/m ² | ISO 179/1eA |
| Notched impact strength (Izod) @ 23°C | 74.0 | kJ/m ² | ISO 180/1A |
| Notched impact strength (Izod) @ -40°C | 7 | kJ/m ² | ISO 180/1A |
| Shore hardness D scale 15 sec value | 63 | - | ISO 868 |
| Bayshore resilience | 40 | % | Internal |
| Ross flex | >1000000 | cycles | Internal |

| Thermal properties | Value | Unit | Test Standard |
|---|------------|--------|-------------------|
| Melting temperature (10°C/min) | 212 | °C | ISO 11357-1,-2,-3 |
| DTUL @ 0.45 MPa | 114 | °C | ISO 75-1/-2 |
| Coeff.of linear therm. expansion (parallel) | 1.8 | E-4/°C | ISO 11359-2 |
| Flammability at thickness h | HB | class | UL94 |
| thickness tested (h) | 1.5 | mm | UL94 |

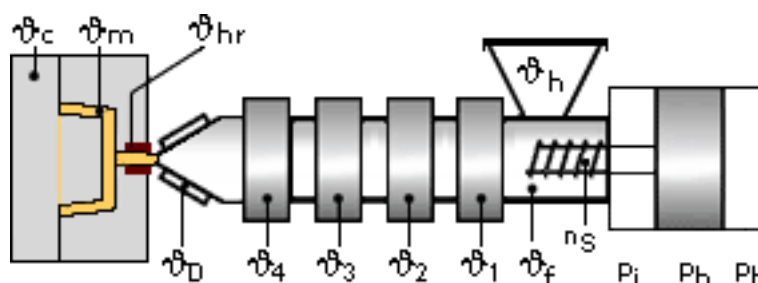
| Electrical properties | Value | Unit | Test Standard |
|--------------------------------|----------------|-------|---------------|
| Relative permittivity - 1 MHz | 4 | - | IEC 60250 |
| Dissipation factor - 1 MHz | 400 | E-4 | IEC 60250 |
| Volume resistivity | 2E13 | Ohm*m | IEC 60093 |
| Surface resistivity | 1E16 | Ohm | IEC 60093 |
| Electric strength | 14 | kV/mm | IEC 60243-1 |
| Comparative tracking index CTI | >600 | - | IEC 60112 |

| Mechanical-TPE properties | Value | Unit | Test Standard |
|---------------------------|-------|------|---------------|
|---------------------------|-------|------|---------------|

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| Mechanical-TPE properties | Value | Unit | Test Standard |
|---------------------------------|-------|------|---------------|
| Stress at 5% elongation | 13 | MPa | ISO 527-1/-2 |
| Stress at 10% elongation | 18 | MPa | ISO 527-1/-2 |
| Stress at 50% elongation | 19 | MPa | ISO 727-1/2 |
| Stress at break | 38 | MPa | ISO 527-1/-2 |
| Shore D hardness (15s) | 63 | - | ISO 868 |
| Tear strength (Die C, parallel) | 160 | kN/m | ISO 34-1 |

Typical injection moulding processing conditions



Pre Drying:

Necessary low maximum residual moisture content: 0.05%

To avoid hydrolytic degradation during processing, Riteflex resins have to be dried to a moisture level equal to or less than 0.05%. Drying should be done in a dehumidifying hopper dryer capable of dewpoints <math><-40^{\circ}\text{F}</math> (-40°C) at 225°F (107°C) for 4 hours.

For subsequent storage of the material in the dryer until processed ($\leq 60\text{ h}$) it is necessary to lower the temperature to 100°C.

Drying time: 4 h

Drying temperature: 100 - 110 °C

Temperature:

| | $\varnothing_{\text{Manifold}}$ | $\varnothing_{\text{Mold}}$ | $\varnothing_{\text{Melt}}$ | $\varnothing_{\text{Nozzle}}$ | $\varnothing_{\text{Zone4}}$ | $\varnothing_{\text{Zone3}}$ | $\varnothing_{\text{Zone2}}$ | $\varnothing_{\text{Zone1}}$ | $\varnothing_{\text{Feed}}$ | $\varnothing_{\text{Hopper}}$ |
|----------|---------------------------------|-----------------------------|-----------------------------|-------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|-----------------------------|-------------------------------|
| min (°C) | 215 | 20 | 215 | 215 | 215 | 215 | 215 | 200 | 200 | 20 |
| max (°C) | 235 | 55 | 235 | 235 | 235 | 230 | 230 | 215 | 215 | 50 |

Speed:

Injection speed: medium-fast

Injection Molding

| | | |
|--------------------|------------------|---------------|
| Rear Temperature | 390-420(200-215) | deg F (deg C) |
| Center Temperature | 420-450(215-230) | deg F (deg C) |
| Front Temperature | 420-450(215-230) | deg F (deg C) |
| Nozzle Temperature | 420-450(215-230) | deg F (deg C) |
| Melt Temperature | 430-460(220-235) | deg F (deg C) |
| Mold Temperature | 75-125(20-55) | deg F (deg C) |
| Back Pressure | 0-50 | psi |

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Screw Speed Medium
Injection Speed Fast

Injection speed, injection pressure and holding pressure have to be optimized to the individual article geometry. To avoid material degradation during processing low back pressure and minimum screw speed have to be used. Overheating of the material has to be avoided, in particular for flame retardant grades. Up to 25% clean and dry regrind may be used.

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General Disclaimer

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Properties of molded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing conditions and environmental exposure. Any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use.

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