

## RITFLEX® 435 | TPC | Unfilled

### Description

Riteflex® 435 is a Thermoplastic Polyester Elastomer with a 35 nominal Shore D hardness, low modulus and outstanding low temperature impact strength and tear resistance.

Physical properties	Value	Unit	Test Standard
Density	<b>1100</b>	kg/m <sup>3</sup>	ISO 1183
Melt flow rate (MFR)	<b>9</b>	g/10 min	ISO 1133
MFR test temperature	<b>220</b>	°C	ISO 1133
MFR test load	<b>2.16</b>	kg	ISO 1133
Mold shrinkage - parallel	<b>1.3</b>	%	ISO 294-4
Mold shrinkage - normal	<b>1.0</b>	%	ISO 294-4

Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	<b>45</b>	MPa	ISO 527-2/1A
Tensile stress at 50% strain (50mm/min)	<b>6</b>	MPa	ISO 527-2/1A
Tensile stress at break (50mm/min)	<b>16</b>	MPa	ISO 527-2/1A
Tensile strain at break (50mm/min)	<b>650</b>	%	ISO 527-2/1A
Flexural modulus (23°C)	<b>35</b>	MPa	ISO 178
Flexural modulus (-40°C)	<b>240</b>	MPa	ISO 178
Flexural modulus (100°C)	<b>19</b>	MPa	ISO 178
Flexural strength (23°C)	<b>3</b>	MPa	ISO 178
Flexural stress @ 3.5% strain	<b>1</b>	MPa	ISO 178
Charpy impact strength @ 23°C	<b>NB</b>	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength @ -30°C	<b>NB</b>	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength @ 23°C	<b>NB</b>	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength @ -30°C	<b>NB</b>	kJ/m <sup>2</sup>	ISO 179/1eA
Unnotched impact str (Izod) @ 23°C	<b>N</b>	kJ/m <sup>2</sup>	ISO 180/1U
Unnotched impact str (Izod) @ -30°C	<b>N</b>	kJ/m <sup>2</sup>	ISO 180/1U
Notched impact strength (Izod) @ 23°C	<b>NB</b>	kJ/m <sup>2</sup>	ISO 180/1A
Notched impact strength (Izod) @ -30°C	<b>N</b>	kJ/m <sup>2</sup>	ISO 180/1A
Notched impact strength (Izod) @ -40°C	<b>N</b>	kJ/m <sup>2</sup>	ISO 180/1A
Shore hardness A scale 15 sec value	<b>91</b>	-	ISO 868
Shore hardness D scale 15 sec value	<b>35</b>	-	ISO 868
Bayshore resilience	<b>60</b>	%	Internal
Ross flex	<b>&gt;1000000</b>	cycles	Internal

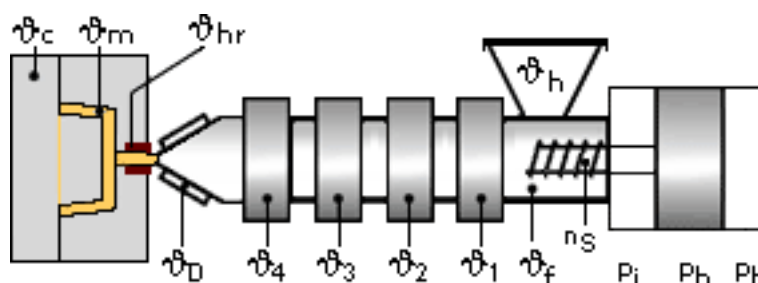
Thermal properties	Value	Unit	Test Standard
Melting temperature (10°C/min)	<b>185</b>	°C	ISO 11357-1,-2,-3
DTUL @ 0.45 MPa	<b>45</b>	°C	ISO 75-1/-2
Coeff.of linear therm. expansion (parallel)	<b>2.4</b>	E-4/°C	ISO 11359-2
Flammability at thickness h	<b>HB</b>	class	UL94
thickness tested (h)	<b>1.5</b>	mm	UL94

Electrical properties	Value	Unit	Test Standard
Relative permittivity - 1 MHz	<b>5.1</b>	-	IEC 60250
Volume resistivity	<b>2E11</b>	Ohm*m	IEC 60093
Surface resistivity	<b>2E15</b>	Ohm	IEC 60093
Electric strength	<b>25</b>	kV/mm	IEC 60243-1
Comparative tracking index CTI	<b>&gt;600</b>	-	IEC 60112

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Mechanical-TPE properties	Value	Unit	Test Standard
Stress at 5% elongation	<b>2</b>	MPa	ISO 527-1/-2
Stress at 10% elongation	<b>3</b>	MPa	ISO 527-1/-2
Stress at 50% elongation	<b>6</b>	MPa	ISO 727-1/2
Shore D hardness (15s)	<b>35</b>	-	ISO 868
Tear strength (Die C, parallel)	<b>89</b>	kN/m	ISO 34-1
Tear strength (Die C, normal)	<b>89.1</b>	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> (<math>-40^{\circ}\text{C}</math>) at <math>225^{\circ}\text{F}</math> (<math>107^{\circ}\text{C}</math>) for 4 hours.

For subsequent storage of the material in the dryer until processed (<math>\leq 60\text{ h}</math>) it is necessary to lower the temperature to <math>100^{\circ}\text{C}</math>.

**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)	200	20	200	200	185	185	185	185	185	20
max (°C)	215	55	215	215	215	210	200	200	200	50

**Speed:**

**Injection speed: medium-fast**

**Injection Molding**

Rear Temperature	370-390(185-200)	deg F (deg C)
Center Temperature	390-410(200-210)	deg F (deg C)
Front Temperature	390-420(200-215)	deg F (deg C)
Nozzle Temperature	390-420(200-215)	deg F (deg C)
Melt Temperature	390-420(200-215)	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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