

RITEFLEX® 440 | TPC | Unfilled

Description

Riteflex 440 is a nominal 40 Shore D thermoplastic polyester elastomer with medium modulus.

Physical properties	Value	Unit	Test Standard
Density	1110	kg/m ³	ISO 1183
Melt flow rate (MFR)	13.3	g/10 min	ISO 1133
MFR test temperature	220	°C	ISO 1133
MFR test load	2.16	kg	ISO 1133
Mold shrinkage - parallel	1.2-1.4	%	ISO 294-4

Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	55	MPa	ISO 527-2/1A
Tensile stress at 50% strain (50mm/min)	7	MPa	ISO 527-2/1A
Tensile stress at break (50mm/min)	18	MPa	ISO 527-2/1A
Tensile strain at break (50mm/min)	650	%	ISO 527-2/1A
Flexural modulus (23°C)	45	MPa	ISO 178
Flexural modulus (-40°C)	270	MPa	ISO 178
Flexural modulus (100°C)	26	MPa	ISO 178
Flexural strength (23°C)	4	MPa	ISO 178
Flexural stress @ 3.5% strain	2	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	NB	kJ/m ²	ISO 179/1eA
Charpy notched impact strength @ -30°C	NB	kJ/m ²	ISO 179/1eA
Unnotched impact str (Izod) @ 23°C	N	kJ/m ²	ISO 180/1U
Unnotched impact str (Izod) @ -30°C	N	kJ/m ²	ISO 180/1U
Notched impact strength (Izod) @ 23°C	NB	kJ/m ²	ISO 180/1A
Notched impact strength (Izod) @ -30°C	N	kJ/m ²	ISO 180/1A
Notched impact strength (Izod) @ -40°C	N	kJ/m ²	ISO 180/1A
Shore hardness A scale 15 sec value	92	-	ISO 868
Shore hardness D scale 15 sec value	38	-	ISO 868
Bayshore resilience	58	%	Internal
Ross flex	>1000000	cycles	Internal

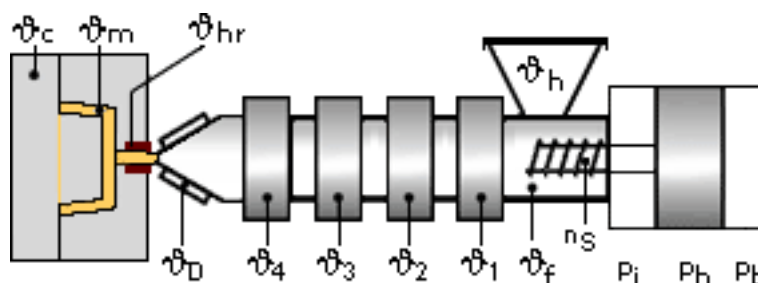
Thermal properties	Value	Unit	Test Standard
Melting temperature (10°C/min)	195	°C	ISO 11357-1,-2,-3
DTUL @ 0.45 MPa	47	°C	ISO 75-1/-2
Coeff.of linear therm. expansion (parallel)	2.4	E-4/°C	ISO 11359-2
Flammability at thickness h	HB	class	UL94
thickness tested (h)	1.5	mm	UL94

Electrical properties	Value	Unit	Test Standard
Relative permittivity - 1 MHz	4.9	-	IEC 60250
Dissipation factor - 1 MHz	200	E-4	IEC 60250
Volume resistivity	2E10	Ohm*m	IEC 60093
Surface resistivity	2E15	Ohm	IEC 60093
Electric strength	26	kV/mm	IEC 60243-1
Comparative tracking index CTI	>600	-	IEC 60112

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Mechanical-TPE properties	Value	Unit	Test Standard
Stress at 5% elongation	2	MPa	ISO 527-1/-2
Stress at 10% elongation	4	MPa	ISO 527-1/-2
Stress at 50% elongation	7	MPa	ISO 727-1/2
Stress at 100% elongation	8	MPa	ISO 527-1/-2
Stress at 300% elongation	12.7	MPa	ISO 527-1/-2
Strain at break	650	%	ISO 527-1/-2
Stress at break	21	MPa	ISO 527-1/-2
Shore D hardness (15s)	38	-	ISO 868
Tear strength (Die C, parallel)	96	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 <-40°F (-40°C) at 225°F (107°C) for 4 hours.

For subsequent storage of the material in the dryer until processed (<= 60 h) it is necessary to lower the temperature to 100° C.

Drying time: 4 h

Drying temperature: 100 - 110 °C

Temperature:

	ϕ _{Manifold}	ϕ _{Mold}	ϕ _{Melt}	ϕ _{Nozzle}	ϕ _{Zone4}	ϕ _{Zone3}	ϕ _{Zone2}	ϕ _{Zone1}	ϕ _{Feed}	ϕ _{Hopper}
min (°C)	190	20	190	190	185	185	185	185	185	20
max (°C)	215	55	215	215	215	210	210	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)

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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
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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