

## RITEFLEX® 440 - TPC

### 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 <sup>3</sup>	ISO 1183
Melt flow rate, MFR	14	g/10min	ISO 1133
MFR temperature	220	°C	ISO 1133
MFR load	2.16	kg	ISO 1133
Molding shrinkage, parallel	1.2 - 1.4	%	ISO 294-4, 2577
Water absorption, 23°C-sat	0.6	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus	50	MPa	ISO 527-2/1A
Tensile stress at yield, 50mm/min	6	MPa	ISO 527-2/1A
Tensile strain at yield, 50mm/min	28	%	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	>500	%	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 at 3.5% strain	2	MPa	ISO 178
Charpy impact strength, 23°C	NB	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength, -30°C	NB	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength, 23°C	NB	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength, -30°C	NB	kJ/m <sup>2</sup>	ISO 179/1eA
Izod impact notched, 23°C	NB	kJ/m <sup>2</sup>	ISO 180/1A
Izod impact notched, -30°C	NB	kJ/m <sup>2</sup>	ISO 180/1A
Izod impact notched, -40°C	NB	kJ/m <sup>2</sup>	ISO 180/1A
Izod impact unnotched, 23°C	NB	kJ/m <sup>2</sup>	ISO 180/1U
Izod impact unnotched, -30°C	NB	kJ/m <sup>2</sup>	ISO 180/1U
Bayshore resilience	58	%	ASTM D 2632
Ross flex	>1000000	cycles	ASTM D 1052

Mechanical properties (TPE)	Value	Unit	Test Standard
Tensile stress at 5% strain, 1BA	2	MPa	ISO 527-1, -2
Tensile stress at 10% strain, 1BA	4	MPa	ISO 527-1, -2
Tensile stress at 50% strain, 1BA	7	MPa	ISO 527-1, -2
Tensile stress at 100% strain	8	MPa	ISO 37
Tensile stress at 300% strain	12.7	MPa	ISO 37
Tensile strain at break, 1BA	650	%	ISO 527-1, -2
Tensile stress at break, 1BA	21	MPa	ISO 527-1, -2
Shore A hardness, 15s	90	-	ISO 868
Shore D hardness, 15s	37	-	ISO 868
Tear strength, Die C/parallel	96	kN/m	ISO 34-1

Thermal properties	Value	Unit	Test Standard
Melting temperature, 10°C/min	195	°C	ISO 11357-1/-3
DTUL at 0.45 MPa	47	°C	ISO 75-1, -2
Vicat softening temperature, 50°C/h 10N	127	°C	ISO 306
Coeff. of linear therm expansion, parallel	2.4	E-4/°C	ISO 11359-2
Flammability at thickness h	HB	class	UL 94
thickness tested (h)	1.50	mm	UL 94

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Electrical properties	Value	Unit	Test Standard
Relative permittivity, 1MHz	4.9	-	IEC 60250
Dissipation factor, 1MHz	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	PLC 0	-	IEC 60112

### Typical injection moulding processing conditions

Pre Drying	Value	Unit	Test Standard
Necessary low maximum residual moisture content	0.05	%	-
Drying time	4	h	-
Drying temperature	100 - 110	°C	-
Temperature	Value	Unit	Test Standard
Hopper temperature	20 - 50	°C	-
Feeding zone temperature	185 - 200	°C	-
Zone1 temperature	185 - 200	°C	-
Zone2 temperature	185 - 210	°C	-
Zone3 temperature	185 - 210	°C	-
Zone4 temperature	185 - 215	°C	-
Nozzle temperature	190 - 215	°C	-
Melt temperature	190 - 215	°C	-
Mold temperature	20 - 55	°C	-
Hot runner temperature	190 - 215	°C	-
Speed	Value	Unit	Test Standard
Injection speed	medium-fast	-	-

### Other text information

#### Pre-drying

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.

#### Longer pre-drying times/storage

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

#### 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  
 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.

### Characteristics

#### Product Categories

Unfilled

#### Processing

Film extrusion, Injection molding