GENERAL USE PLASTICS

TPE

Quadrant® TPE combines the resistance and processing characteristics of engineering plastics with the dynamic performance of thermoset elastomers. Compared to other elastomers, polyester-based materials offer more consistent operating performance. It is characterized by its high elasticity and mechanical properties at high and low temperatures.

MAIN CHARACTERISTICS

- Properties consistent over a wide range of temperatures: - 40ºC to 80ºC
- Excellent flexural fatigue resistance at high and below zero temperatures
- Extreme toughness
- High creep resistance
- Impact resistance
- Elasticity and resilience (e.g. compression assembly)
- Very good general chemical resistance: industrial chemicals and solvents, gasoline, grease, oils, etc.
- Very high energy absorption

APPLICATIONS

- Dampers
- Ship deck pads
- Springs (e.g.: Springs for wagons - railway)
- Gears
- Wheels
- Bumpers
- Polyurethane/steel and rubber/steel substitute

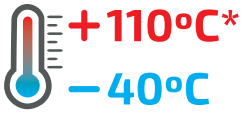
CHEMICAL RESISTANCE

ELECTRICAL INSULATION

WEAR RESISTANCE

SLIDING PROPERTIES

IMPACT RESISTANCE



TEMPERATURE RANGE

*continuously (20.000H)

GENERAL USE PLASTICS

TECHNICAL DATASHEET

PROPERTIES	TEST METHOD	UNITS	TPE
COLOR		-	NATURAL
DENSITY	ISO 1183-1	g/cm³	1.20
WATER ABSORPTION			
AFTER 24/96H IMMERSION IN WATER OF 23ºC	ISO 62	mg	-
	ISO 62	%	-
AT SATURATION IN AIR OF 23ºC / 50% RH	-	%	0.2
AT SATURATION IN WATER OF 23ºC	-	%	0.65
THERMAL PROPERTIES			
MELTING TEMPERATURE (DSC, 10ºC/MIN)	ISO 11357-1/-3	ºC	210
GLASS TRANSITION TEMPERATURE (DSC, 20ºC/MIN)	ISO 11357-1/-2	ºC	-
THERMAL CONDUCTIVITY AT 23ºC	-	W/(K.m)	0.19
COEFFICIENT OF LINEAR THERMAL EXPANSION			
AVERAGE VALUE BETWEEN 23-60ºC	-	M/(m.K)	150 x 10^{-6}
TEMPERATURE OF DEFLECTION UNDER LOAD			
METHOD A 1.8 MPA +	ISO 75-1/-2	ºC	110
MAXIMUM ALLOWABLE SERVICE TEMPERATURE IN AIR			
FOR SHORT PERIODS	-	ºC	170
CONTINUOUSLY: 10.000H	-	ºC	110
MINIMUM SERVICE TEMPERATURE	-	ºC	-40
FLAMMABILITY			
"OXYGEN INDEX"	ISO 4589-1/-2	%	-
ACCORDING TO UL94 (3/6MM DE ESPESSURA)	-	-	HB
MECHANICAL PROPERTIES AT 23ºC			
TENSION TEST			
TENSILE STRESS AT YIELD	ISO 527-1/-2	MPa	21
TENSILE STRENGTH	ISO 527-1/-2	MPa	21
TENSILE STRAIN AT YIELD	ISO 527-1/-2	%	32
TENSILE STRESS AT 5% STRAIN	ISO 527-1/-2	MPa	16
TENSILE STRESS AT 10% STRAIN	ISO 527-1/-2	MPa	19
TENSILE STRESS AT 50% STRAIN	ISO 527-1/-2	MPa	20.5
TENSILE STRESS AT 100% STRAIN	ISO 527-1/-2	MPa	20
TENSILE STRESS AT 300% STRAIN	ISO 527-1/-2	MPa	20.5
TENSILE STRENGTH	ISO 527-1/-2	MPa	21
TENSILE STRAIN AT BREAK	ISO 527-1/-2	%	>400
TENSILE MODULUS OF ELASTICITY	ISO 527-1/-2	MPa	310
FLEXURE TEST			
FLEXURAL STRENGTH	ISO 178	MPa	19
COMPRESSION TEST			
1/2/5/10/20% NOMINAL STRAIN	ISO 604	MPa	3/6/14/21/27
CHARPY IMPACT STRENGTH - UNNOTCHED	ISO 179-1/1eU	KJ/m²	s/ RUTURA
CHARPY IMPACT STRENGTH - NOTCHED AT 23ºC	ISO 179-1/1eA	KJ/m²	55P
CHARPY IMPACT STRENGTH - NOTCHED AT -30ºC	ISO 179-1/1eA	KJ/m²	25
SHORE HARDNESS D	ISO 868	-	57
ELECTRICAL PROPERTIES AT 23ºC			
ELECTRIC STRENGTH	IEC 60243-1	kV/mm	20
VOLUME RESISTIVITY	IEC 60093	Ohm.cm	> 10^{14}
SURFACE RESISTIVITY	ESD STM 11.11	Ohm/SQ.	> 10^{13}
RELATIVE PERMITTIVITY ε_r : A 1MHz	IEC 60250	-	4
DIELECTRIC DISSIPATION FACTOR TAN δ : A 1MHz	IEC 60250	-	0.04
COMPARATIVE TRACKING INDEX (CTI)	IEC 60112	-	600