



Compound Information

POLY-TREL Family of Compounds

TPE thermoplastic polyester Elastomer

Property	Test Method	Units	COMPOUND NUMBER				
			HT40	HT47	HT55	HT63	HT72
			Value	Value	Value	Value	Value
Mechanical							
Tensile Stress	ISO 527	Mpa (kpsi)					
@5% Strain			2.5 (0.4)		6.9 (1)	12 (1.7)	14 (2)
@10% Strain			4.4 (0.6)	6.8 (1.0)	11 (1.6)	15 (2.2)	23 (3.3)
@50% Strain			8.0 (1.2)	11 (1.6)			
Yield Stress	ISO 527	Mpa (kpsi)			14 (2.0)	19 (2.8)	
Stress at Break	ISO 527	Mpa (kpsi)	17 (2.5)	17 (2.5)	44 (6.4)	46 (6.7)	53 (7.7)
Strain at Break	ISO 527	%	250	200	500	490	450
Normal Strain at Break	ISO 527	%	350	>50	800	540	
Yield Strain	ISO 527	%			37	35	
Tensile Modulus	ISO 527	Mpa (kpsi)	55 (8.0)	105 (15.2)	188 (27.3)	280 (41)	525 (76)
Flexural Modulus	ISO 178	Mpa (kpsi)					
-40C (-40F)			200 (29)	260 (37)	760 (110)	248 (36)	2350 (340)
23C (73F)			65 (9.4)	117 (17)	200 (29)	182 (26.4)	550 (80)
100C (212F)			30 (4)	60 (9)	100 (14)	296 (43)	200 (28)
Hardness , Shore D	ISO 868						
15s			35	43	51	58	68
Maximum			40	47	55	63	72
Tensile Impact Strength	ISO 8256	kJ/m2			200	300	
Notched Charpy Impact Strength	Iso 179/1eA	kJ/m2					
-40C (-40F)					148	15	
-30C (-22F)			NB	MB	90	25	
23C (73F)			NB	MB	NB	120	33
Color							

Test specimen for ISO 527 is 1BA (2mm) at 50mm/min; all other ISO & ASTM mechanical properties measured at 4mm; electrical properties measured at 2mm.

All mechanical & electrical properties measured on injection molded specimens.

Test temperatures are 23C unless otherwise stated.

The information provided in this data sheet corresponds to our knowledge on the subject at the date of this publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relate only to the specific material designated; these data may not be valid for such materials used in combination with any other material, additives or pigments or in any process, unless expressly indicated otherwise. The data provided should not be used to establish specifications limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to do to determine the suitability of a specific compound for your particular purpose. Since Engineered Seals cannot anticipate all variation in actual end-use conditions ESC makes no warranties and assumes no liability in connection with any use of this information. Caution: Do not use this product in medical application involving permanent implantation in the human body.



Product Information

POLY-TREL Compound HT55-5

TPE thermoplastic polyester elastomer

Property	Test Method	Units	Value
Mechanical			
Tensile Stress	ISO 527	Mpa (kpsi)	
@5% Strain			6.9 (1)
@10% Strain			11 (1.6)
@50% Strain			
Yield Stress	ISO 527	Mpa (kpsi)	14 (2.0)
Stress at Break	ISO 527	Mpa (kpsi)	44 (6.4)
Strain at Break	ISO 527	%	500
Normal Strain at Break	ISO 527	%	800
Yield Strain	ISO 527	%	37
Tensile Modulus	ISO 527	Mpa (kpsi)	188 (27.3)
Flexural Modulus	ISO 178	Mpa (kpsi)	
-40C (-40F)			760 (110)
23C (73F)			200 (29)
100C (212F)			100 (14)
Hardness , Shore D	ISO 868		
15s			51
Maximum			55
Tensile Impact Strength	ISO 8256	kJ/m2	200
Notched Charpy Impact Strength	Iso 179/1eA	kJ/m2	
-40C (-40F)			148
-30C (-22F)			90
23C (73F)			NB
Reinforcement	YES		
Color	Orange		

Test specimen for ISO 527 is 1BA (2mm) at 50mm/min; all other ISO & ASTM mechanical properties measured at 4mm; electrical properties measured at 2mm.

All mechanical & electrical properties measured on injection molded specimens.

Test temperatures are 23C unless otherwise stated.

The information provided in this data sheet corresponds to our knowledge on the subject at the date of this publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relate only to the specific material designated; these data may not be valid for such materials used in combination with any other material, additives or pigments or in any process, unless expressly indicated otherwise. The data provided should not be used to establish specifications limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to do to determine the suitability of a specific compound for your particular purpose. Since Engineered Seals, LLC cannot anticipate all variation in actual end-use conditions ESC makes no warranties and assumes no liability in connection with any use of this information. Caution: Do not use this product in medical application involving permanent implantation in the human body.



Product Information

ESC-thane Compound U93

TPU thermoplastic polyester urethane

Property	Test Method	Units	Value
Mechanical			
Tensile Modulus	ASTM D 412	MPa (psi)	
@50% Elongation			8.4 (2250)
@100% Elongation			11.0 (1600)
@300% Elongation			27.6 (4000)
Ultimate Tensile Strength	ASTM D 412	MPa (psi)	44.8 (6500)
Ultimate Elongation	ASTM D 412	%	400
Elongation Set After Break	ASTM D 412	%	30
Tear Strength, Die "C"	ASTM D 624	KN/m (PLI)	145 (830)
Compression Set	ASTM D 395		
22 hours at 25 C (77 F)	Method B	%	25
22 hours at 70 C (158 F)		%	29
Hardness , Shore A	ASTM D 2240		90-98A
Taber Abrasion Resistance	ASTM D 1044		
1000 g, 1,000 cycles; H-22 wheel (coarser)		10	mg
Flexural Modulus	ASTM D 790	Mpa (psi)	82.7 (12,000)
Reinforcement	NO		
Color			



Product Information

ESC-Ion Compound PA903

Nylon 6 Glass Fiber Reinforced (40%), Heat Stabilized

Property	Test Method	Units	Value
Mechanical			
Tensile Strength	ASTM D638	Mpa (psi)	172 (25,000)
Tensile Elongation	ASTM D638	%	2.5
Tensile Modulus	ASTM D638	Mpa (psi)	13,000 (1,900,000)
Flexural Strength	ASTM D790	Mpa (psi)	262 (38,000)
Flexural Modulus	ASTM D790	Mpa (psi)	11,000 (1,600,000)
Compressive Strength	ASTM D695	Mpa (psi)	179 (26,000)
Impact Strength		Mpa (psi)	
Notched 1/8"	ASTM D256	J/m (ft-lb/in)	133 (2.5)
Unnotched 1/8"	ASTM D256	J/m (ft-lb/in)	1270 (24)
Hardness, Rockwell	ASTM D785	R	120
PHYSICAL PROPERTIES			
Specific Gravity	ASTM D792		1.46
Water Absorption		Mpa (psi)	
24 hrs. @ 73 F (23 C)	ASTM D570	%	1
Coefficient of Friction (Dynamic)			0.45
THERMAL PROPERTIES			
Deflection Temperature			
@264 psi (1.8 Mpa)	ASTM D648	C (F)	204 (400)
@66 psi (0.45Mpa)	ASTM D648	C (F)	210 (410)
Coefficient of Linear Thermal Expansion	ASTM D696	m/m/C (in/in/F)	.000015 (.000027)
Color			