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Hytrel® SC956 NC010

THERMOPLASTIC POLYESTER ELASTOMER

Common features of Hytrel® thermoplastic polyester elastomer include mechanical and physical properties such as exceptional toughness and resilience, high resistance to creep, impact and flex fatigue, flexibility at low temperatures and good retention of properties at elevated temperatures. In addition, it resists many industrial chemicals, oils and solvents. Special grades include heat stabilised, flame retardant, food contact compliant, blow molding and extrusion grades. Concentrates offered include black pigments, UV protection additives, heat stabilisers, and flame retardants.
Hytrel® thermoplastic polyester elastomer is plasticiser free.

The good melt stability of Hytrel® thermoplastic polyester elastomer normally enables the recycling of properly handled production waste. If recycling is not possible, we recommend, as the preferred option, incineration with energy recovery (-24 kJ/g of base polymer) in appropriately equipped installations.
For disposal, local regulations have to be observed.

Hytrel® thermoplastic polyester elastomer typically is used in demanding applications in the automotive, fluid power, electrical/electronic, consumer goods, appliance and power tool, sporting goods, furniture, industrial and off-road transportation/equipment industry.

Hytrel® SC956 NC010 is a medium modulus grade with nominal hardness of 55D, contains a non-discoloring stabilizer and processed by many conventional thermoplastic processing techniques. Developed for applications such as parts for the healthcare industry.

SPECIAL CONTROL for HEALTHCARE APPLICATIONS

This product is manufactured according to Good Manufacturing Practice (GMP) principles and generally accepted in food contact applications in the USA when meeting applicable use conditions. This product is also tested against ISO 10993-5 and -11 and selected parts of USP Class VI. For details, individual compliance statements are available from our representative.

Product information

Resin Identification	TPC-ET		ISO 1043
Part Marking Code	>TPC-ET<		ISO 11469

Rheological properties

Melt volume-flow rate	7	cm^3/10min	ISO 1133
Melt mass-flow rate	8	g/10min	ISO 1133
Temperature	220	°C	
Load	2.16	kg	
Moulding shrinkage, parallel	1.4	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.4	%	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	180	MPa	ISO 527-1/-2
Stress at 5% strain	6.9	MPa	ISO 527-1/-2
Stress at 10% strain	11	MPa	ISO 527-1/-2
Stress at 100% strain	16	MPa	ISO 527-1/-2
Stress at break	40	MPa	ISO 527-1/-2
Nominal strain at break	600	%	ISO 527-1/-2
Strain at break	>300	%	ISO 527-1/-2

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Flexural Modulus	180	MPa	ISO 178
Tensile creep modulus, 1h	170	MPa	ISO 899-1
Tensile creep modulus, 1000h	130	MPa	ISO 899-1
Charpy impact strength, 23°C	N	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	N	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	N	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	150[P]	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -40°C	140	kJ/m²	ISO 179/1eA
Tensile notched impact strength, 23°C	300	kJ/m²	ISO 8256/1
Poisson's ratio	0.48		
Shore D hardness, 15s	51		ISO 48-4 / ISO 868
Shore D hardness, max	55		ISO 868
Tear strength, parallel	140	kN/m	ISO 34-1
Abrasion resistance	120	mm³	ISO 4649

[P]: Partial Break

Thermal properties

Melting temperature, 10°C/min	201	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	-20	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	45	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	70	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h, 50N	75	°C	ISO 306
Vicat softening temperature, 50°C/h 10N	180	°C	ISO 306
Coeff. of linear therm. expansion, parallel	180	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	180	E-6/K	ISO 11359-1/-2

Flammability

Burning Behav. at 1.5mm nom. thickn.	HB	class	UL 94
Thickness tested	1.5	mm	UL 94

Other properties

Humidity absorption, 2mm	0.2	%	Sim. to ISO 62
Water absorption, 2mm	0.6	%	Sim. to ISO 62
Density	1190	kg/m³	ISO 1183
Density of melt	1030	kg/m³	Internal

Injection

Drying Recommended	yes		
Drying Temperature	100	°C	
Drying Time, Dehumidified Dryer	2 - 3	h	
Processing Moisture Content	≤0.08	%	
Melt Temperature Optimum	230	°C	Internal
Min. melt temperature	220	°C	

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Max. melt temperature	250	°C
Mold Temperature Optimum	45	°C
Min. mould temperature	45	°C
Max. mould temperature	55	°C

Extrusion

Drying Temperature	90 - 110	°C
Drying Time, Dehumidified Dryer	2 - 3	h
Processing Moisture Content	≤0.06	%
Melt Temperature Optimum	225	°C
Melt Temperature Range	220 - 235	°C