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Hytrel® HTR8241

THERMOPLASTIC POLYESTER ELASTOMER

Hytrel® HTR8241 is a 65 Shore D High Performance Polyester Elastomer Developed for Extrusion

Product information

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

Rheological properties

Melt volume-flow rate	5	cm^3/10min	ISO 1133
Temperature	230	°C	
Load	2.16	kg	
Moulding shrinkage, parallel	1.7	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.6	%	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	360	MPa	ISO 527-1/-2
Yield stress	22	MPa	ISO 527-1/-2
Yield strain	29	%	ISO 527-1/-2
Stress at 5% strain	12.5	MPa	ISO 527-1/-2
Stress at 10% strain	18	MPa	ISO 527-1/-2
Stress at 50% strain	21	MPa	ISO 527-1/-2
Stress at break	45	MPa	ISO 527-1/-2
Nominal strain at break	490	%	ISO 527-1/-2
Strain at break	>300	%	ISO 527-1/-2
Flexural Modulus	360	MPa	ISO 178
Charpy impact strength, 23°C	N	kJ/m^2	ISO 179/1eU
Charpy impact strength, -30°C	N	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, 23°C	N	kJ/m^2	ISO 179/1eA
Charpy notched impact strength, -30°C	14	kJ/m^2	ISO 179/1eA
Charpy notched impact strength, -40°C	10	kJ/m^2	ISO 179/1eA
Izod notched impact strength, -40°C	9	kJ/m^2	ISO 180/1A
Poisson's ratio	0.48		
Shore D hardness, 15s	60		ISO 48-4 / ISO 868
Shore D hardness, max	63		ISO 868
Tear strength, parallel	210	kN/m	ISO 34-1
Tear strength, normal	200	kN/m	ISO 34-1

Thermal properties

Melting temperature, 10°C/min	211	°C	ISO 11357-1/-3
Temp. of deflection under load, 0.45 MPa	85	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 10N	200	°C	ISO 306
Coeff. of linear therm. expansion, parallel	200	E-6/K	ISO 11359-1/-2

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Coeff. of linear therm. expansion, normal	200	E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.15	W/(m K)	Internal
Eff. thermal diffusivity	5.44E-8	m^2/s	Internal
Spec. heat capacity of melt	2070	J/(kg K)	Internal

Flammability

FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<80	mm/min	ISO 3795 (FMVSS 302)

Electrical properties

Dissipation factor, 100Hz	110	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	110	E-4	IEC 62631-2-1
Volume resistivity	7E10	Ohm.m	IEC 62631-3-1
Surface resistivity	2E14	Ohm	IEC 62631-3-2
Electric strength	18	kV/mm	IEC 60243-1
Comparative tracking index	600		IEC 60112

Other properties

Humidity absorption, 2mm	0.2	%	Sim. to ISO 62
Water absorption, 2mm	0.7	%	Sim. to ISO 62
Density	1240	kg/m^3	ISO 1183
Density of melt	1070	kg/m^3	Internal

Injection

Drying Recommended	yes		
Drying Temperature	110	°C	
Drying Time, Dehumidified Dryer	2 - 4	h	
Processing Moisture Content	≤0.08	%	
Melt Temperature Optimum	240	°C	Internal
Min. melt temperature	230	°C	
Max. melt temperature	250	°C	
Mold Temperature Optimum	45	°C	
Min. mould temperature	40	°C	
Max. mould temperature	50	°C	

Extrusion

Drying Temperature	100 - 120	°C	
Drying Time, Dehumidified Dryer	2 - 3	h	
Processing Moisture Content	≤0.06	%	
Melt Temperature Optimum	235	°C	
Melt Temperature Range	225 - 240	°C	

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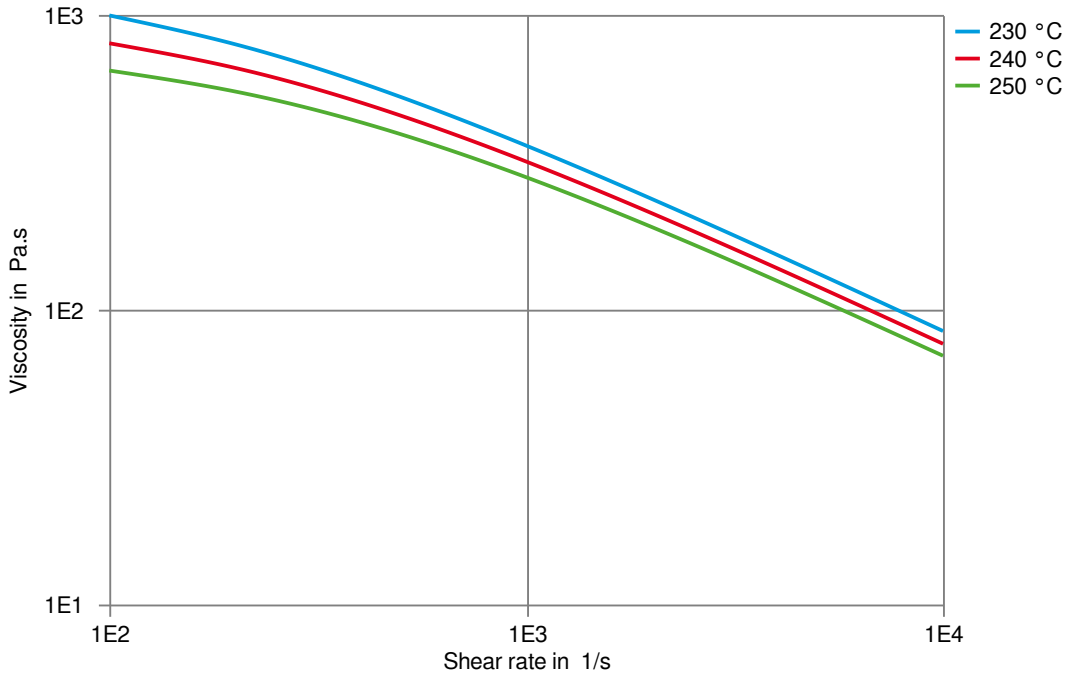
Viscosity-shear rate



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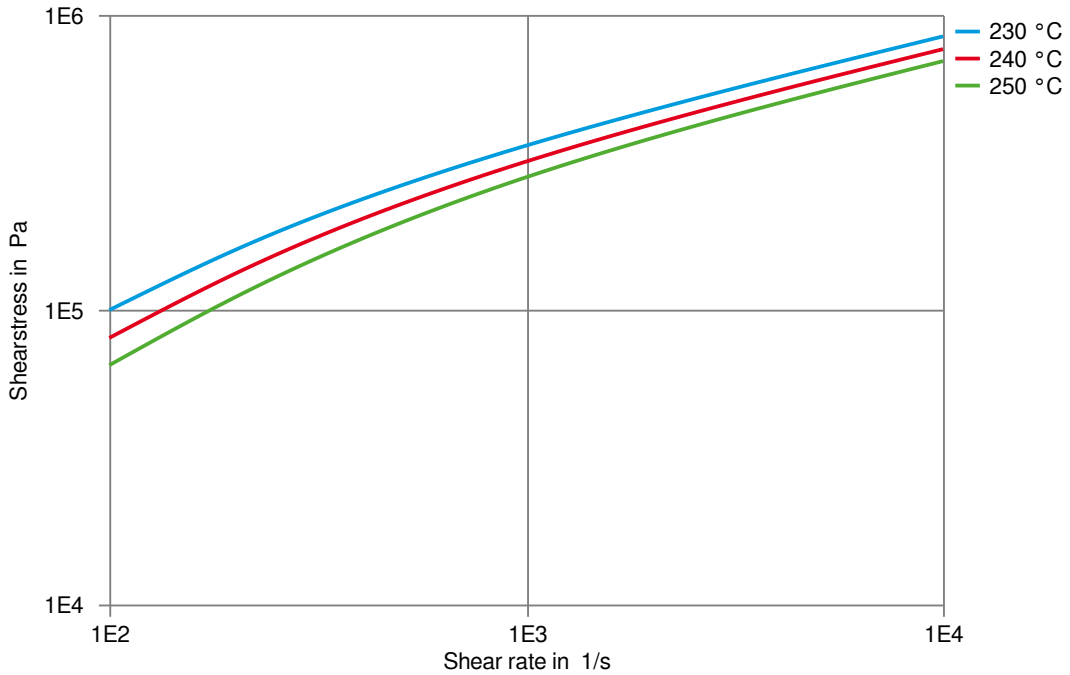
Shearstress-shear rate



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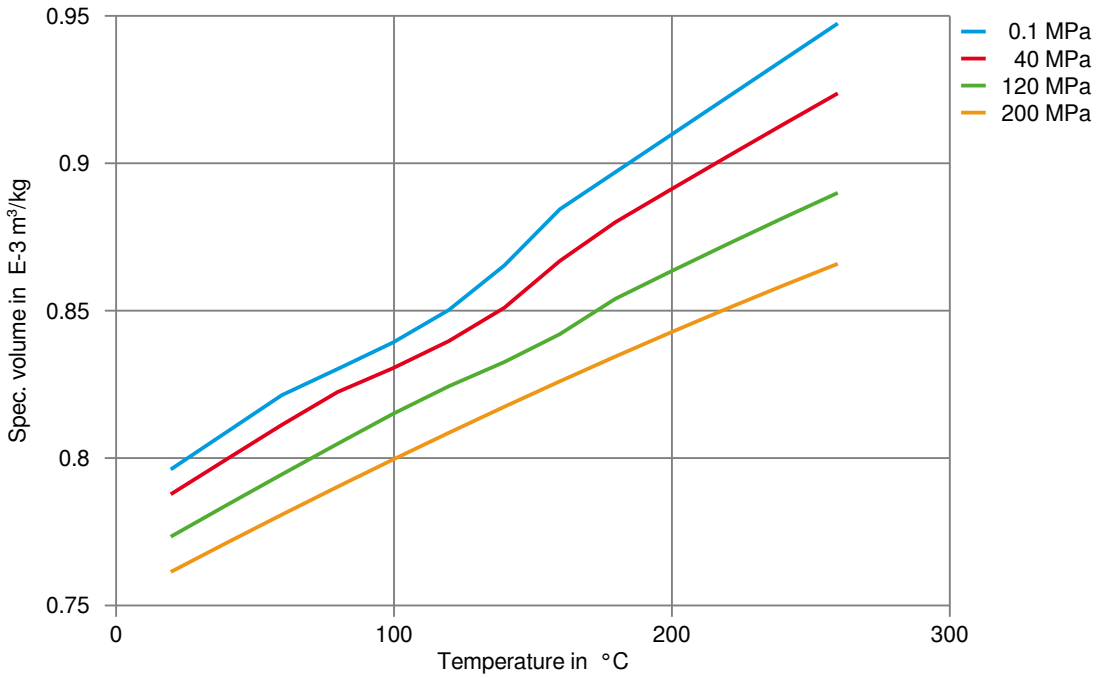
Specific volume-temperature (pvT)



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Chemical Media Resistance

Acids

- ✔ Acetic Acid (5% by mass), 23°C
- ✔ Citric Acid solution (10% by mass), 23°C
- ✔ Lactic Acid (10% by mass), 23°C
- ✘ Hydrochloric Acid (36% by mass), 23°C
- ✘ Nitric Acid (40% by mass), 23°C
- ✘ Sulfuric Acid (38% by mass), 23°C
- ✔ Sulfuric Acid (5% by mass), 23°C
- ✘ Chromic Acid solution (40% by mass), 23°C

Bases

- ✔ Sodium Hydroxide solution (35% by mass), 23°C
- ✔ Sodium Hydroxide solution (1% by mass), 23°C
- ✔ Ammonium Hydroxide solution (10% by mass), 23°C

Alcohols

- ✔ Isopropyl alcohol, 23°C
- ✔ Methanol, 23°C
- ✔ Ethanol, 23°C

Hydrocarbons

- ✔ n-Hexane, 23°C
- ✔ Toluene, 23°C
- ✔ iso-Octane, 23°C

Ketones

- ✘ Acetone, 23°C

Ethers

- ✘ Diethyl ether, 23°C

Mineral oils

- ✔ SAE 10W40 multigrade motor oil, 23°C
- ✘ SAE 10W40 multigrade motor oil, 130°C
- ✘ SAE 80/90 hypoid-gear oil, 130°C
- ✔ Insulating Oil, 23°C

Standard Fuels

- ✘ ISO 1817 Liquid 1 - E5, 60°C
- ✘ ISO 1817 Liquid 2 - M15E4, 60°C
- ✘ ISO 1817 Liquid 3 - M3E7, 60°C
- ✘ ISO 1817 Liquid 4 - M15, 60°C
- ✔ Standard fuel without alcohol (pref. ISO 1817 Liquid C), 23°C
- ✔ Standard fuel with alcohol (pref. ISO 1817 Liquid 4), 23°C
- ✔ Diesel fuel (pref. ISO 1817 Liquid F), 23°C
- ✔ Diesel fuel (pref. ISO 1817 Liquid F), 90°C
- ✘ Diesel fuel (pref. ISO 1817 Liquid F), >90°C

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Salt solutions

- ✔ Sodium Chloride solution (10% by mass), 23°C
- ✘ Sodium Hypochlorite solution (10% by mass), 23°C
- ✔ Sodium Carbonate solution (20% by mass), 23°C
- ✔ Sodium Carbonate solution (2% by mass), 23°C
- ✔ Zinc Chloride solution (50% by mass), 23°C

Other

- ✔ Ethyl Acetate, 23°C
- ✘ Hydrogen peroxide, 23°C
- ✘ DOT No. 4 Brake fluid, 130°C
- ✘ Ethylene Glycol (50% by mass) in water, 108°C
- ✔ 1% nonylphenoxy-polyethyleneoxy ethanol in water, 23°C
- ✔ 50% Oleic acid + 50% Olive Oil, 23°C
- ✔ Water, 23°C
- ✘ Water, 90°C
- ✔ Phenol solution (5% by mass), 23°C

Symbols used:

✔ possibly resistant
Defined as: Supplier has sufficient indication that contact with chemical can be potentially accepted under the intended use conditions and expected service life. Criteria for assessment have to be indicated (e.g. surface aspect, volume change, property change).

✘ not recommended - see explanation
Defined as: Not recommended for general use. However, short-term exposure under certain restricted conditions could be acceptable (e.g. fast cleaning with thorough rinsing, spills, wiping, vapor exposure).