## Product Information

Common features of Crastin® thermoplastic polyester resin include mechanical and physical properties such as stiffness and toughness, heat resistance, friction and wear resistance, excellent surface finishes and good colourability. Crastin® thermoplastic polyester resin has excellent electrical insulation characteristics and high arc-resistant grades are available. Many flame retardant grades have UL recognition (class V-0). Crastin® thermoplastic polyester resin typically has high chemical and heat ageing resistance.

The good melt stability of Crastin® thermoplastic polyester resin normally enables the recycling of properly handled production waste. If recycling is not possible, DuPont recommends, 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.

Crastin® thermoplastic polyester resin typically is used in demanding applications in the electronics, electrical, automotive, mechanical engineering, chemical, domestic appliances and sporting goods industry.

#### Crastin® 6129 is an unreinforced, high viscosity polybutylene terephthalate for extrusion and injection molding.

General information	Value	Unit	Test Standard
Resin Identification	PBT	=	ISO 1043
Part Marking Code	PBT	-	ISO 11469
Rheological properties	Value	Unit	Test Standard
Melt mass-flow rate	10	g/10min	ISO 1133
Melt mass-flow rate, Temperature	250	°C	ISO 1133
Melt mass-flow rate, Load	2.16	kg	ISO 1133
Viscosity number	150	cm³/g	ISO 307, 1157, 1628
Molding shrinkage, parallel	1.7	%	ISO 294-4, 2577
Molding shrinkage, normal	1.5	%	ISO 294-4, 2577
Mechanical properties	Value	Unit	Test Standard
Tensile Modulus	2600	MPa	ISO 527-1/-2
Yield stress	58	MPa	ISO 527-1/-2
Yield strain	5	%	ISO 527-1/-2
Nominal strain at break	>50	%	ISO 527-1/-2
Flexural Modulus	2400	MPa	ISO 178
Tensile creep modulus			ISO 899-1
1h	2500	MPa	
1000h	1800	MPa	
Charpy impact strength			ISO 179/1eU
73°F	N	kJ/m²	
-22°F	N	kJ/m²	
Charpy notched impact strength			ISO 179/1eA
73°F	5.5	kJ/m²	
-22°F	4	kJ/m²	
Thermal properties	Value	Unit	Test Standard
Melting temperature, 18°F/min	225	°C	ISO 11357-1/-3
Temp. of deflection under load			ISO 75-1/-2
260 psi	50	°C	
65 psi	115	°C	
Vicat softening temperature, 90°F/h, 11 lbf	175	°C	ISO 306
Coeff. of linear therm. expansion, parallel	130	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	130	E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.25	W/(m K)	-
Spec. heat capacity of melt	2090	J/(kg K)	-
RTI, electrical			UL 746B
60mil	75	°C	
120mil	75	°C	

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Toll-Free (USA): 800 441-0575



RTI, impact				UL 746B
60mil		75	°C	
120mil		75	°Č	
RTI, strength		,,,		UL 746B
60mil		75	°C	02 7 10B
120mil		75 75	°C	
Flammability		Value		Test Standard
Burning Behav. at 60mil nom. thickn.		HB	class	IEC 60695-11-10
Thickness tested		1.5	mm	IEC 60695-11-10
			111111	UL 94
UL recognition		yes	- close	IEC 60695-11-10
Burning Behav. at thickness h		HB	class	
Thickness tested		0.9	mm	IEC 60695-11-10
UL recognition		yes	- 0/	UL 94
Oxygen index		22	%	ISO 4589-1/-2
FMVSS Class		<u>B</u>	- , .	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm		21	mm/min	ISO 3795 (FMVSS 302)
Electrical properties		Value	Unit	Test Standard
Relative permittivity, 1MHz		3.2	-	IEC 60250
Dissipation factor, 1MHz		200	E-4	IEC 60250
Volume resistivity		>1E13	Ohm*m	IEC 60093
Surface resistivity		1E12	Ohm	IEC 60093
Electric strength		26	kV/mm	IEC 60243-1
Comparative tracking index		600	-	IEC 60112
Other properties		Value	Unit	Test Standard
Humidity absorption, 80mil		0.2	%	Sim. to ISO 62
Water absorption, 80mil		0.4	%	Sim. to ISO 62
Density		1320	kg/m³	ISO 1183
Density of melt		1120	kg/m³	-
Injection		Value	Unit	Test Standard
Drying Recommended		yes	-	:
Drying Temperature		120	°C	-
Drying Time, Dehumidified Dryer		2 - 4		-
Processing Moisture Content		≤0.04	%	-
Melt Temperature Optimum		250	°C	
Min. melt temperature		240	°C	
Max. melt temperature		260	°C	
Mold Temperature Optimum		80	°C	
Min. mold temperature		30	°C	
Max. mold temperature		130	°C	<u> </u>
·			MPa	
Hold pressure range Hold pressure time		≥60		
		4	s/mm	<del>-</del>
Back pressure		As low as possible	^ <b>c</b>	<u> </u>
Ejection temperature		170	°C	-
Extrusion		Value		Test Standard
Drying Temperature		110 - 130		-
Drying Time, Dehumidified Dryer		2 - 4		-
Processing Moisture Content		≤0.04		-
Melt Temperature Optimum		250	°C	-
Melt Temperature Range		240 - 260	°C	-
Characteristics				
Processing	<ul><li>Injection Molding</li><li>Profile Extrusion</li></ul>		eet Extrusion her Extrusion	Coating
Delivery form	Pellets	<u> </u>		
<u> </u>	North America	• Sni	uth and Central	America
Regional Availability	Europe		ar East/Africa	
		.,.		

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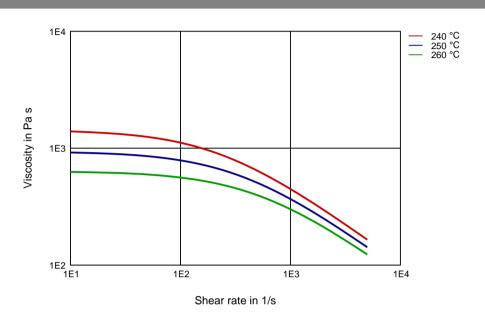
Tel: +41 22 717 51 11

Toll-Free (USA): 800 441-0575

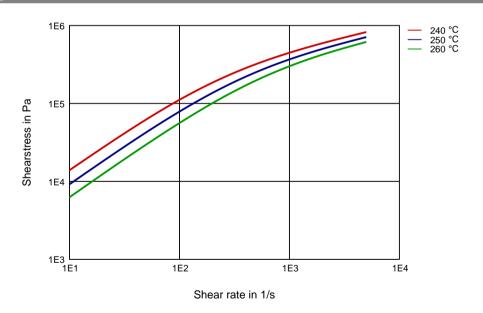


Diagrams

## Viscosity-shear rate



## Shearstress-shear rate



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North America

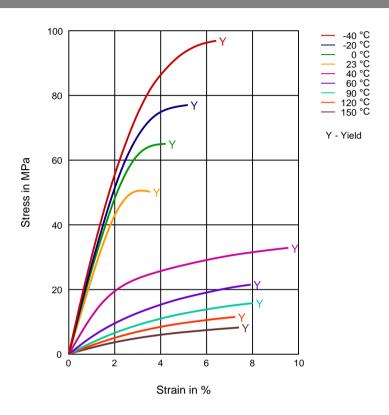
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Stress-strain



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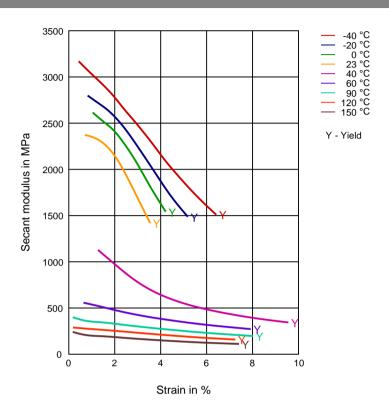
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Secant modulus-strain



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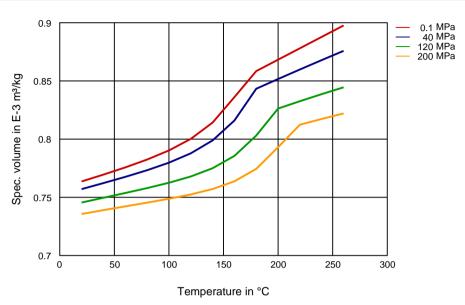
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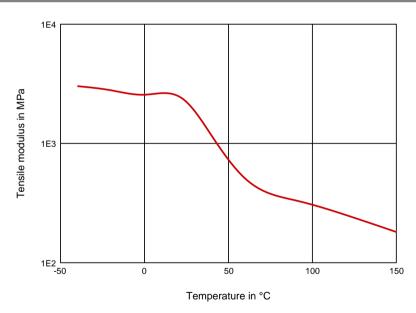




## Specific volume-temperature (pvT)



## Tensile modulus-temperature



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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)

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)

Acetone (23°C)

#### Ethers

Diethyl ether (23°C)

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)

Toll-Free (USA): 800 441-0575

#### 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)

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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)

#### 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)

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).

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc. ISO Mechanical properties measured at 160 mil (Hytrel® measured at 80 mil), IEC Electrical properties measured at 80 mil, all ASTM properties measured at 120 mil, and test temperatures are 73°F unless otherwise stated.

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