

# DuPont™ Crastin® SK603 NC010

## THERMOPLASTIC POLYESTER RESIN

### 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® SK603 NC010 is a 20% glass fiber reinforced, lubricated polybutylene terephthalate resin for injection molding.**

General information	Value	Unit	Test Standard
Resin Identification	PBT-GF20	-	-
Part Marking Code	>PBT-GF20<	-	ISO 11469
Rheological properties	Value	Unit	Test Standard
Moulding shrinkage, parallel	0.3	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.1	%	ISO 294-4, 2577
Mechanical properties	Value	Unit	Test Standard
Tensile Modulus	7400	MPa	ISO 527-1/-2
Stress at break	125	MPa	ISO 527-1/-2
Strain at break	3.2	%	ISO 527-1/-2
Flexural Modulus	6200	MPa	ISO 178
Flexural Strength	180	MPa	ISO 178
Tensile creep modulus			ISO 899-1
1h	7200	MPa	
1000h	5600	MPa	
Charpy impact strength			ISO 179/1eU
23 °C	60	kJ/m <sup>2</sup>	
-30 °C	55	kJ/m <sup>2</sup>	
Charpy notched impact strength			ISO 179/1eA
23 °C	8	kJ/m <sup>2</sup>	
-30 °C	9	kJ/m <sup>2</sup>	
Izod notched impact strength			ISO 180/1A
23 °C	9	kJ/m <sup>2</sup>	
-30 °C	8	kJ/m <sup>2</sup>	
Izod impact strength			ISO 180/1U
23 °C	60	kJ/m <sup>2</sup>	
-30 °C	60	kJ/m <sup>2</sup>	
Thermal properties	Value	Unit	Test Standard
Melting temperature, 10 °C/min	225	°C	ISO 11357-1/-3
Temp. of deflection under load			ISO 75-1/-2
1.8 MPa	204	°C	
0.45 MPa	220	°C	
Vicat softening temperature, 50 °C/h, 50N	210	°C	ISO 306
Coeff. of linear therm. expansion, parallel	40	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	100	E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.25	W/(m K)	-
Spec. heat capacity of melt	1860	J/(kg K)	-
RTI, electrical, 0.8mm	130	°C	UL 746B
RTI, impact, 0.8mm	130	°C	UL 746B

To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

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RTI, strength, 0.8mm			
Flammability			
	Value	Unit	Test Standard
Burning Behav. at 1.5mm nom. thickn.	HB	class	IEC 60695-11-10
Thickness tested	1.5	mm	IEC 60695-11-10
UL recognition	UL	-	-
Burning Behav. at thickness h	HB	class	IEC 60695-11-10
Thickness tested	0.8	mm	IEC 60695-11-10
Oxygen index	19	%	ISO 4589-1/-2
Glow Wire Flammability Index, 3mm	750	°C	IEC 60695-2-1/2
Glow Wire Ignition Temperature			IEC 60695-2-1/3
0.75mm	750	°C	
1mm	750	°C	
2mm	750	°C	
Electrical properties			
	Value	Unit	Test Standard
Relative permittivity			IEC 60250
100Hz	4.2	-	
1MHz	3.6	-	
Dissipation factor			IEC 60250
100Hz	21	E-4	
1MHz	190	E-4	
Volume resistivity	>1E13	Ohm*m	IEC 60093
Surface resistivity	1E15	Ohm	IEC 60093
Electric strength	29	kV/mm	IEC 60243-1
Comparative tracking index	400	-	IEC 60112
Electric Strength, 20s			
2mm	17	kV/mm	IEC 60243-1
3.2mm (0.126in)	17	kV/mm	ASTM D 149
Other properties			
	Value	Unit	Test Standard
Humidity absorption, 2mm	0.15	%	Sim. to ISO 62
Water absorption, 2mm	0.4	%	Sim. to ISO 62
Density	1450	kg/m <sup>3</sup>	ISO 1183
Density of melt	1260	kg/m <sup>3</sup>	-
VDA Properties			
	Value	Unit	Test Standard
Burning rate, Thickness 1 mm	28	mm/min	ISO 3795 (FMVSS 302)
Emission of organic compounds	140	µgC/g	VDA 277
Odour	3	class	VDA 270

### Characteristics

Processing	• Injection Moulding
Delivery form	• Pellets
Additives	• Release agent
Regional Availability	• North America • Europe • Asia Pacific • South and Central America • Near East/Africa • Global

### Processing Texts

#### Injection molding

##### PREPROCESSING

Drying recommended = Yes  
 Drying temperature = 110-130 °C  
 Drying time, dehumidified dryer = 2-4 h  
 Processing moisture content = <0.04 %

##### PROCESSING

Melt temperature optimum = 250 °C

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## THERMOPLASTIC POLYESTER RESIN

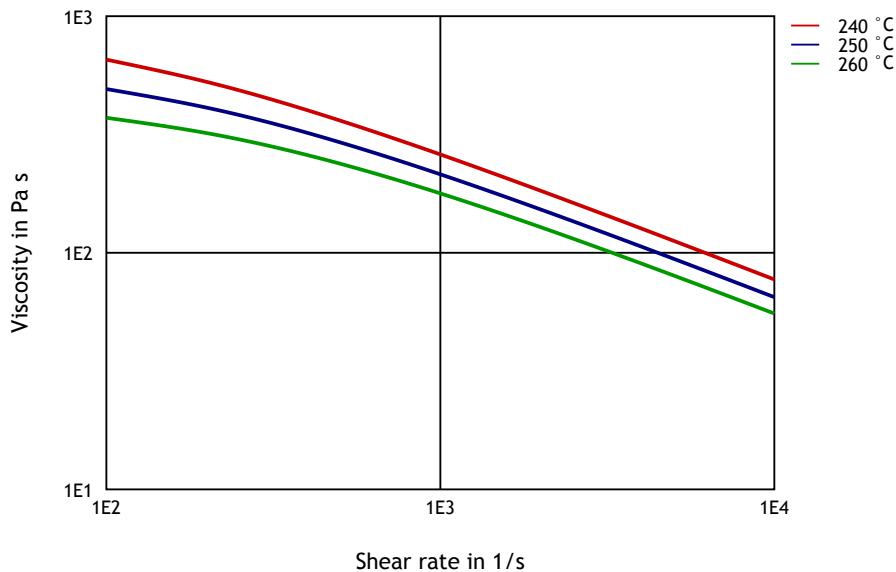
Melt temperature range = 240-260°C

Mould temperature optimum = 80°C

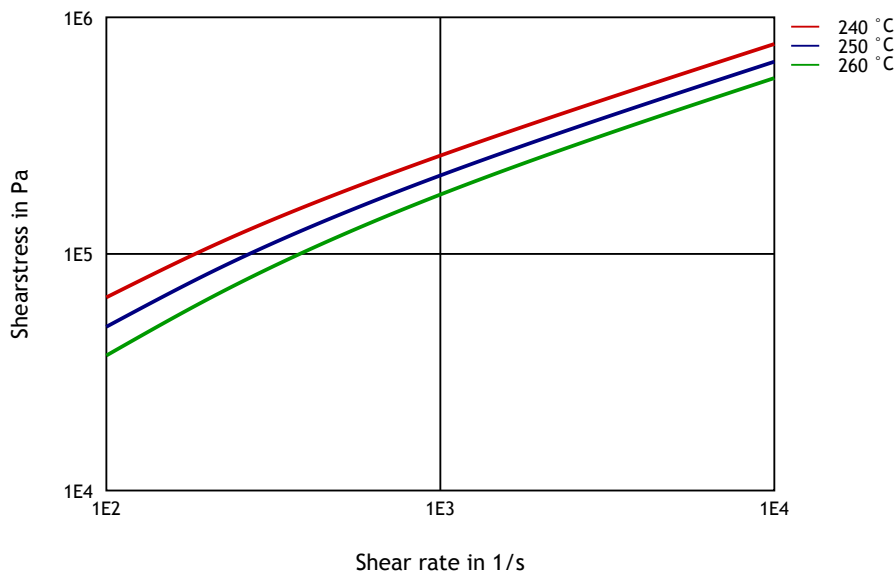
Mould temperature range = 30-130°C

### Diagrams

#### Viscosity-shear rate



#### Shearstress-shear rate



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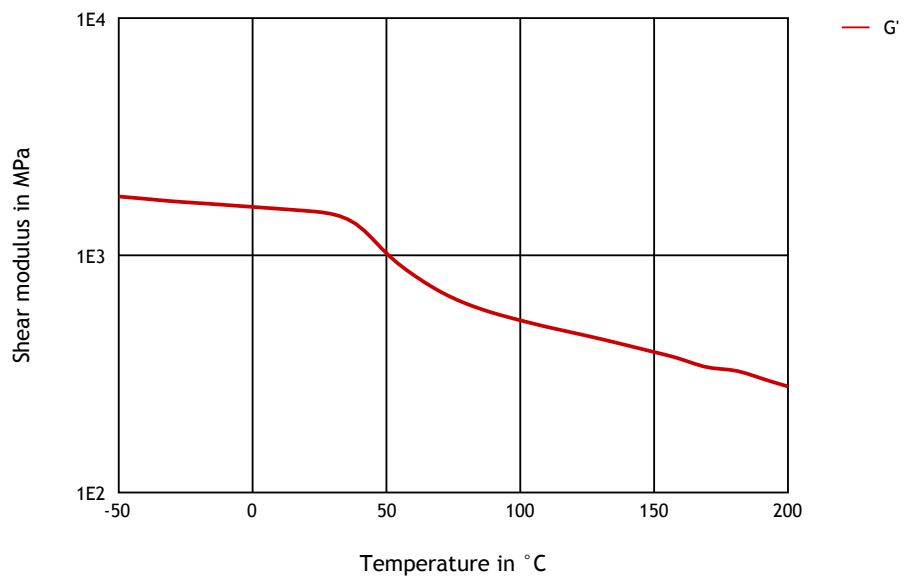
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## THERMOPLASTIC POLYESTER RESIN

Dynamic Shear modulus-temperature



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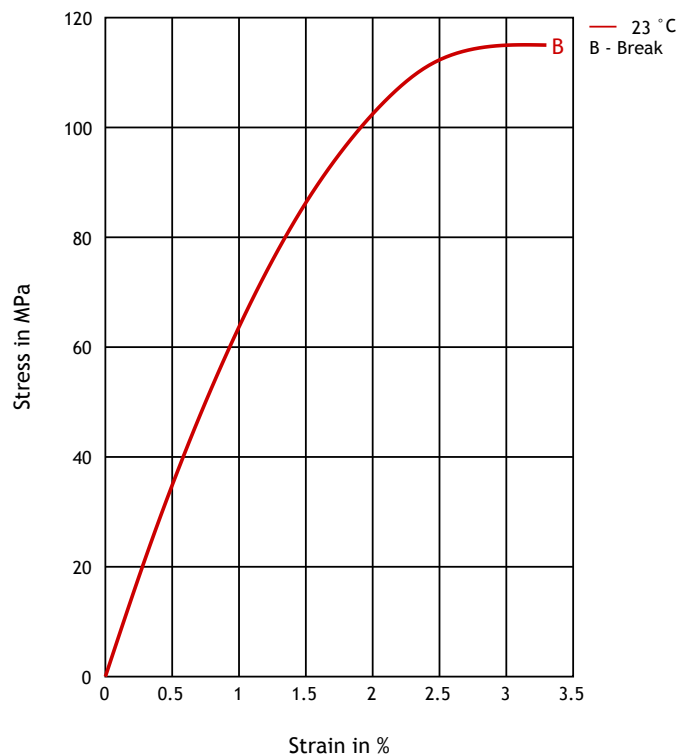
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## THERMOPLASTIC POLYESTER RESIN

Stress-strain



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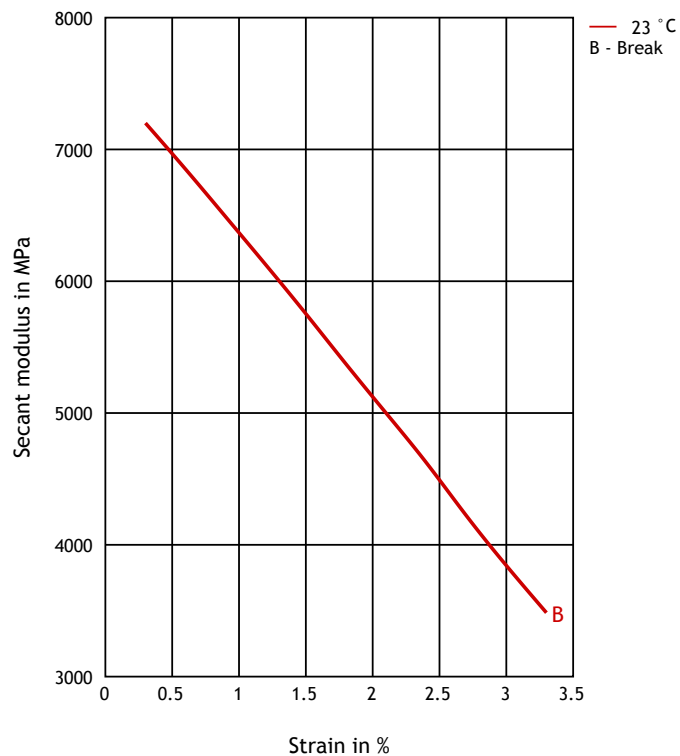
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# DuPont™ Crastin® SK603 NC010

## THERMOPLASTIC POLYESTER RESIN

Secant modulus-strain



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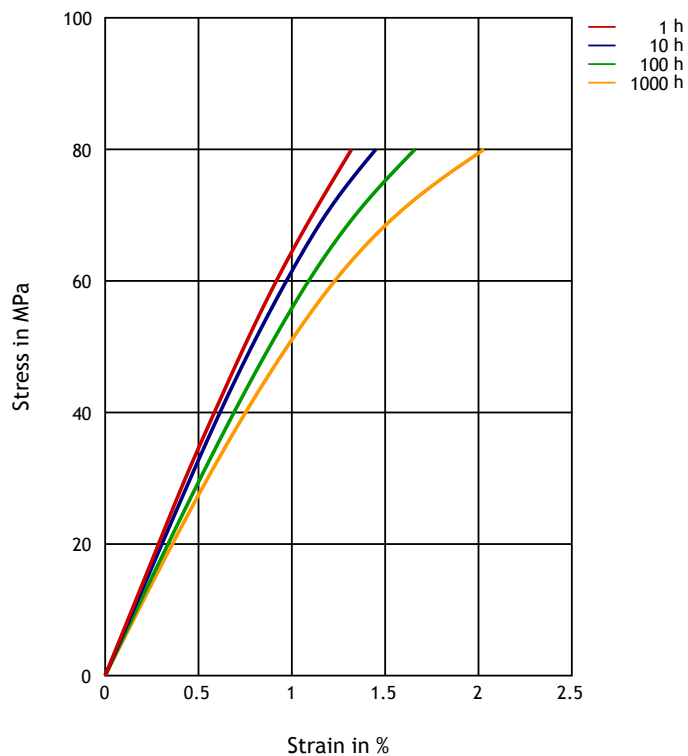
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# DuPont™ Crastin® SK603 NC010

## THERMOPLASTIC POLYESTER RESIN

Stress-strain (isochronous) 23°C



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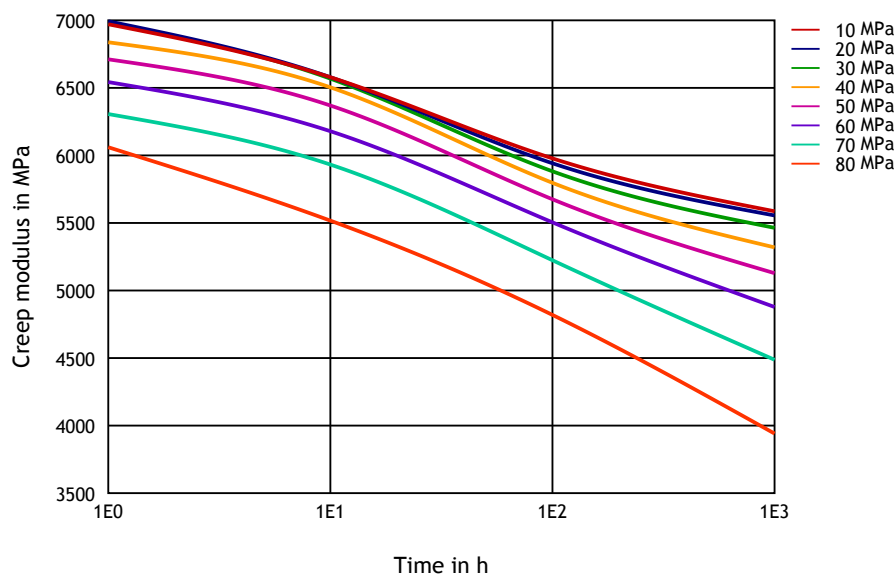
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## THERMOPLASTIC POLYESTER RESIN

Creep modulus-time 23 °C



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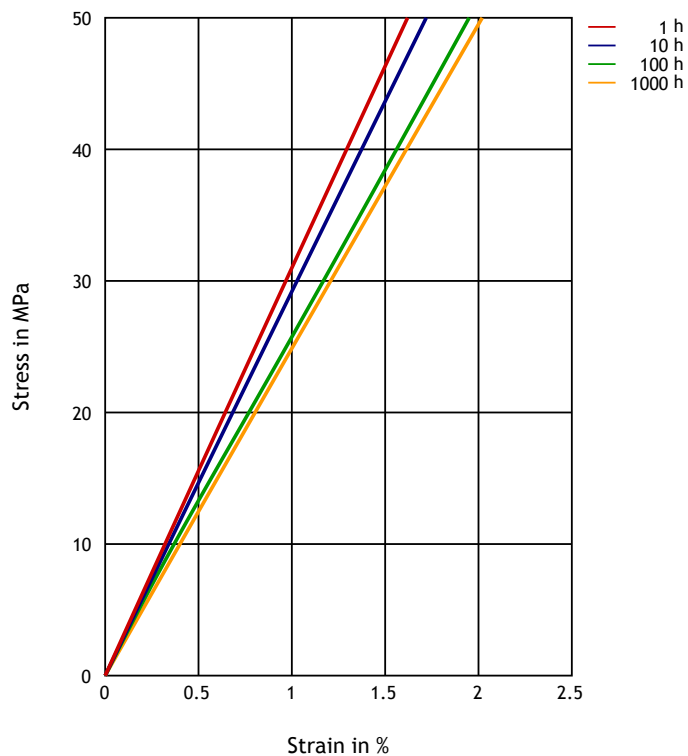




# DuPont™ Crastin® SK603 NC010

## THERMOPLASTIC POLYESTER RESIN

Stress-strain (isochronous) 60°C



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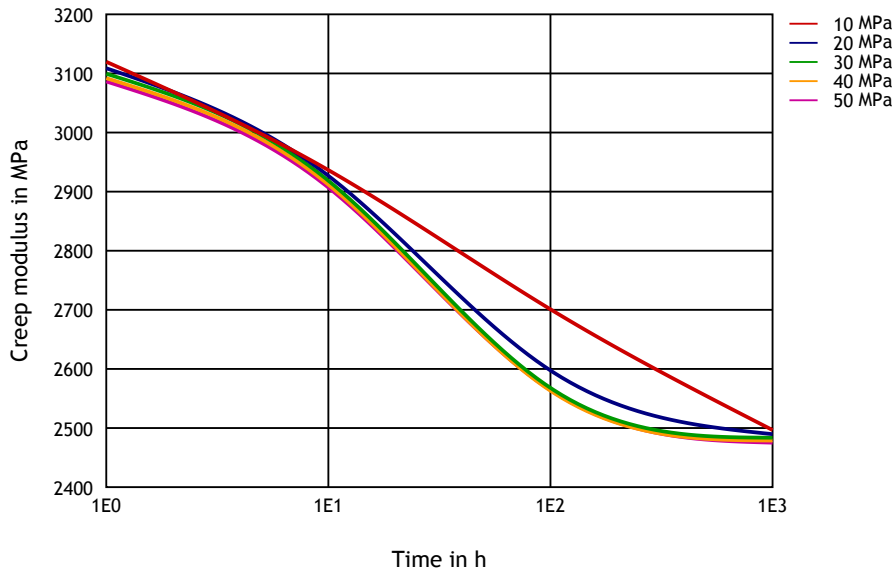
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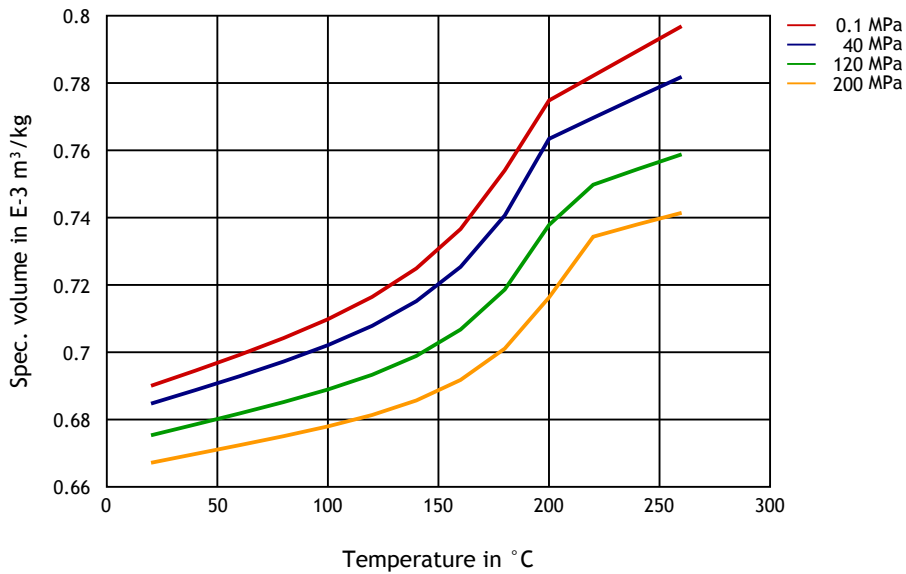
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## THERMOPLASTIC POLYESTER RESIN

Creep modulus-time 60 °C



Specific volume-temperature (pvT)



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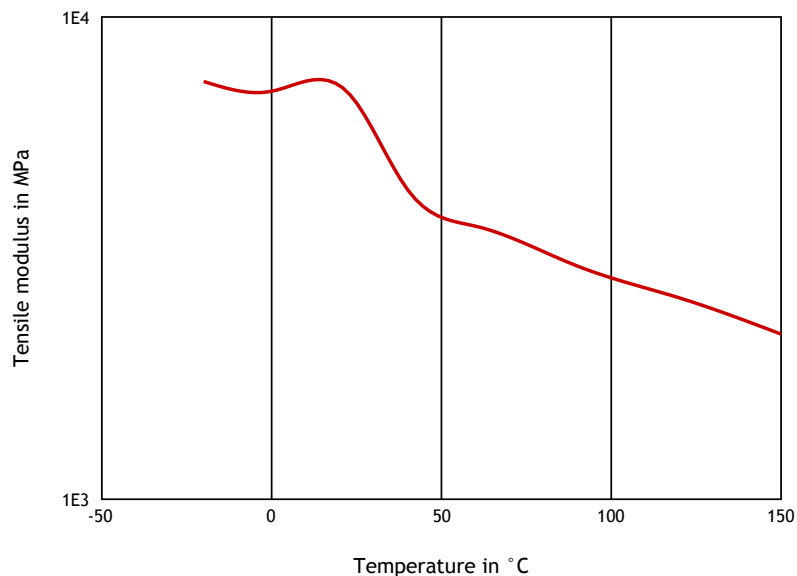
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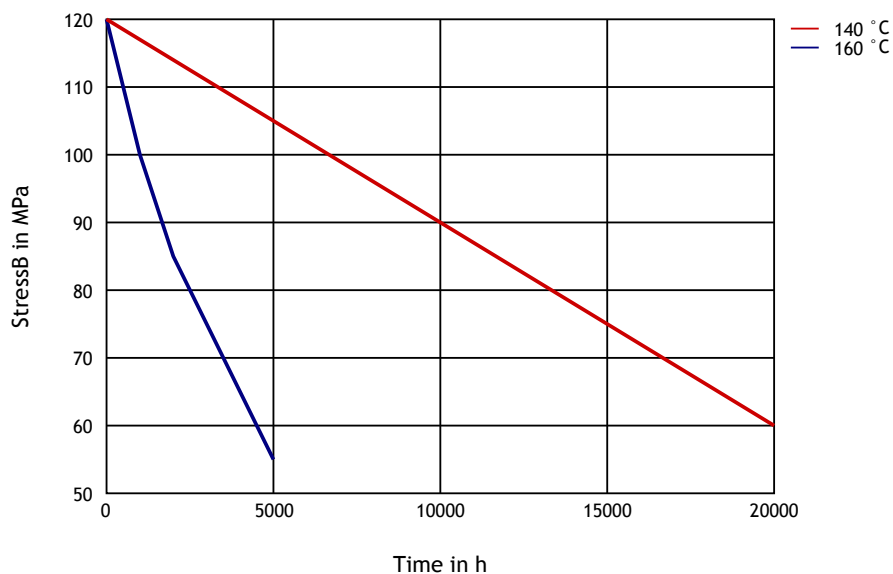
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## THERMOPLASTIC POLYESTER RESIN

### Tensile modulus-temperature



### LTHA-Stress at Break 4mm



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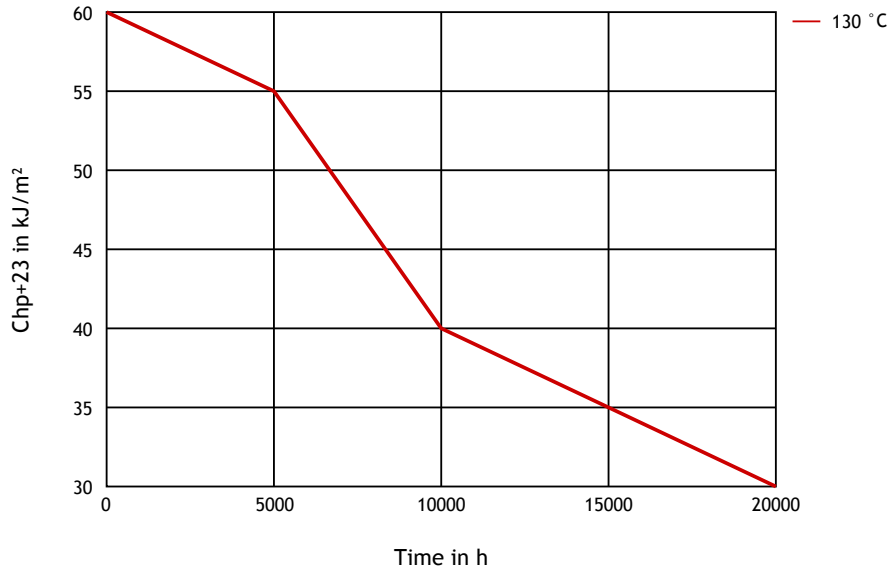
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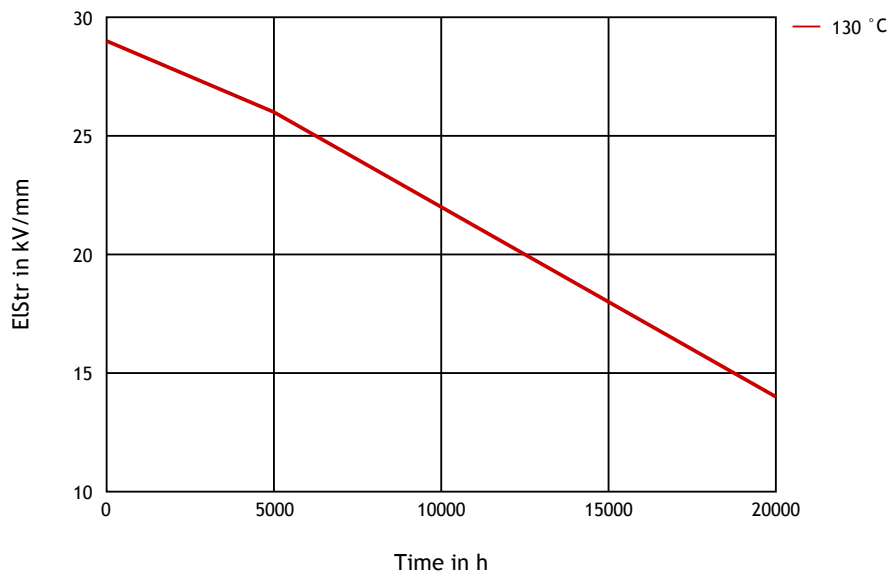
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## THERMOPLASTIC POLYESTER RESIN

### LTHA-Charpy Impact Strength (23°C) 4mm



### LTHA-Electric Strength 1mm



### Chemical Media Resistance

#### Acids

✓ Acetic Acid (5% by mass) (23°C)

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- ✓ 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 (60 °C)
- ✗ ISO 1817 Liquid 2 (60 °C)
- ✗ ISO 1817 Liquid 3 (60 °C)
- ✗ ISO 1817 Liquid 4 (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)

### Salt solutions

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## THERMOPLASTIC POLYESTER RESIN

- ✓ 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).

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc. ISO Mechanical properties measured at 4.0mm (Hytrel® measured at 2 mm), IEC Electrical properties measured at 2.0mm, all ASTM properties measured at 3.2mm, and test temperatures are 23°C unless otherwise stated.

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