DuPont™ Crastin® SK605 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® SK605 NC010 is a 30% glass fiber reinforced, lubricated polybutylene terephthalate resin for injection molding.

General information	Value	Unit	Test Standard
Resin Identification	PBT-GF30	-	-
Part Marking Code	>PBT-GF30<	-	ISO 11469
Rheological properties	**Value**	**Unit**	**Test Standard**
Viscosity number	100	cm^3/g	ISO 307, 1157, 1628
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	10000	MPa	ISO 527-1/-2
Stress at break	140	MPa	ISO 527-1/-2
Strain at break	2.7	%	ISO 527-1/-2
Flexural Modulus	9000	MPa	ISO 178
Flexural Strength	200	MPa	ISO 178
Tensile creep modulus			ISO 899-1
1h	9000	MPa	
1000h	6600	MPa	
Charpy impact strength			ISO 179/1eU
23°C	70	kJ/m^2	
-30°C	75	kJ/m^2	
-40°C	75	kJ/m^2	
Charpy notched impact strength			ISO 179/1eA
23°C	11	kJ/m^2	
-30°C	11	kJ/m^2	
-40°C	10	kJ/m^2	
Izod notched impact strength			ISO 180/1A
23°C	11	kJ/m^2	
-30°C	10	kJ/m^2	
-40°C	10	kJ/m^2	
Izod impact strength			ISO 180/1U
23°C	60	kJ/m^2	
-30°C	55	kJ/m^2	
-40°C	55	kJ/m^2	
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	205	°C	
0.45 MPa	220	°C	
Vicat softening temperature, 50°C/h, 50N	215	°C	ISO 306
Coeff. of linear therm. expansion, parallel	30	E-6/K	ISO 11359-1/-2

To find out more, visit DuPont Performance Polymers or contact nearest DuPont location.

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Coeff. of linear therm. expansion, normal	90	E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.28	W/(m K)	-
Spec. heat capacity of melt	1730	J/(kg K)	-
RTI, electrical, 0.8mm	130	°C	UL 746B
RTI, impact, 0.8mm	130	°C	UL 746B
RTI, strength, 0.8mm	130	°C	UL 746B
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			IEC 60695-2-1/2
0.75mm	725	°C	
1.5mm	725	°C	
3mm	825	°C	
Glow Wire Ignition Temperature			IEC 60695-2-1/3
0.75mm	750	°C	
1mm	750	°C	
1.5mm	750	°C	
2mm	750	°C	
3mm	800	°C	
Electrical properties	**Value**	**Unit**	**Test Standard**
Relative permittivity			IEC 60250
100Hz	4.4	-	
1MHz	3.8	-	
Dissipation factor			IEC 60250
100Hz	25	E-4	
1MHz	180	E-4	
Volume resistivity	>1E13	Ohm*m	IEC 60093
Surface resistivity	>1E15	Ohm	IEC 60093
Electric strength	31	kV/mm	IEC 60243-1
Comparative tracking index	450	-	IEC 60112
Electric Strength, 20s			
2mm	17	kV/mm	IEC 60243-1
3.2mm (0.126in)	17	kV/mm	ASTM D 149
Dissipation Factor			ASTM D 150
1 MHz	180	-	
1000 Hz	20	-	
Other properties	**Value**	**Unit**	**Test Standard**
Humidity absorption, 2mm	0.15	%	Sim. to ISO 62
Water absorption, 2mm	0.35	%	Sim. to ISO 62
Density	1530	kg/m³	ISO 1183
Density of melt	1360	kg/m³	-
VDA Properties	**Value**	**Unit**	**Test Standard**
Burning rate, Thickness 1 mm	41	mm/min	ISO 3795 (FMVSS 302)
Fogging, F-value (refraction)	99	%	ISO 6452

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

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Processing Texts

Injection molding

PREPROCESSING

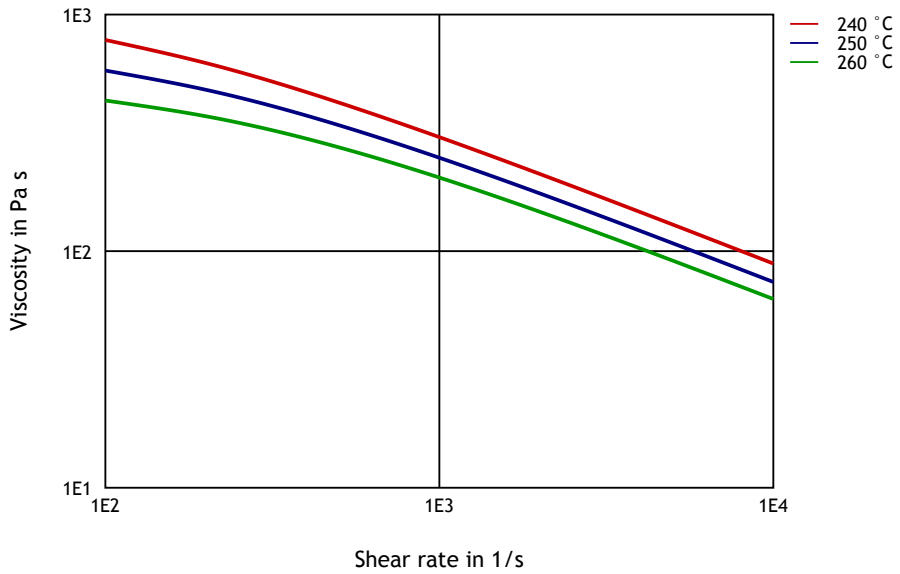
Drying recommended = Yes
Drying temperature = 110-130°C
Drying time, dehumidified dryer = 2-4 h
Processing moisture content = <0.04 %

PROCESSING

Melt temperature optimum = 250°C
Melt temperature range = 240-260°C
Mould temperature optimum = 80°C
Mould temperature range = 30-130°C

Diagrams

Viscosity-shear rate



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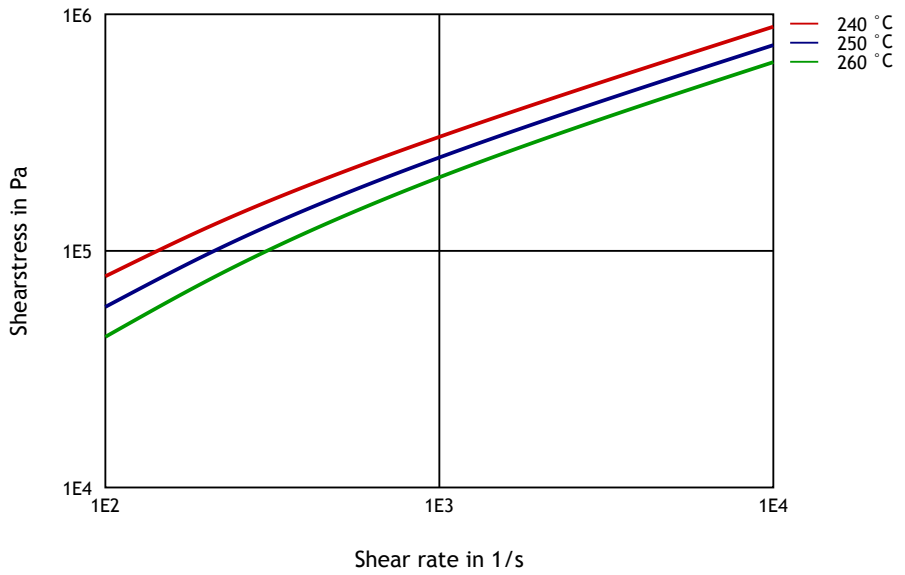
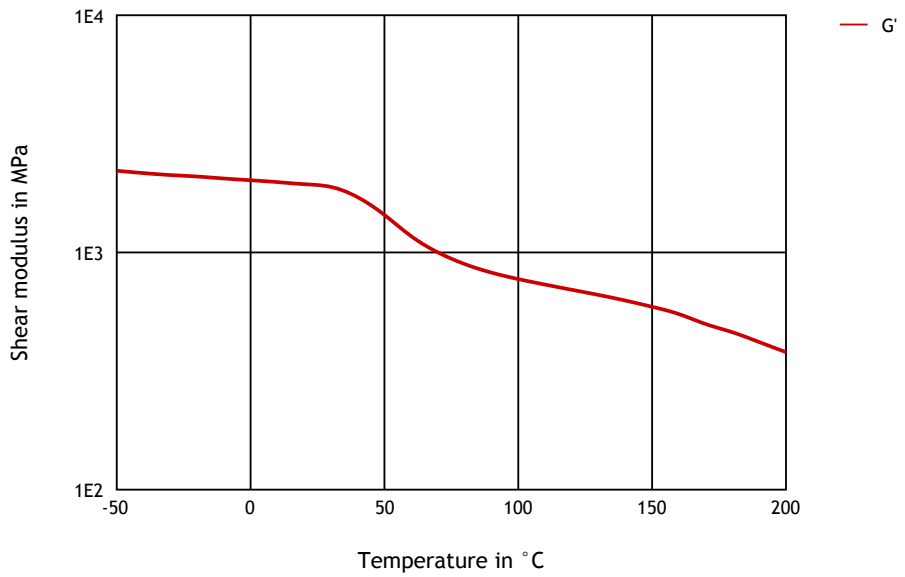
Shearstress-shear rate



Dynamic Shear modulus-temperature



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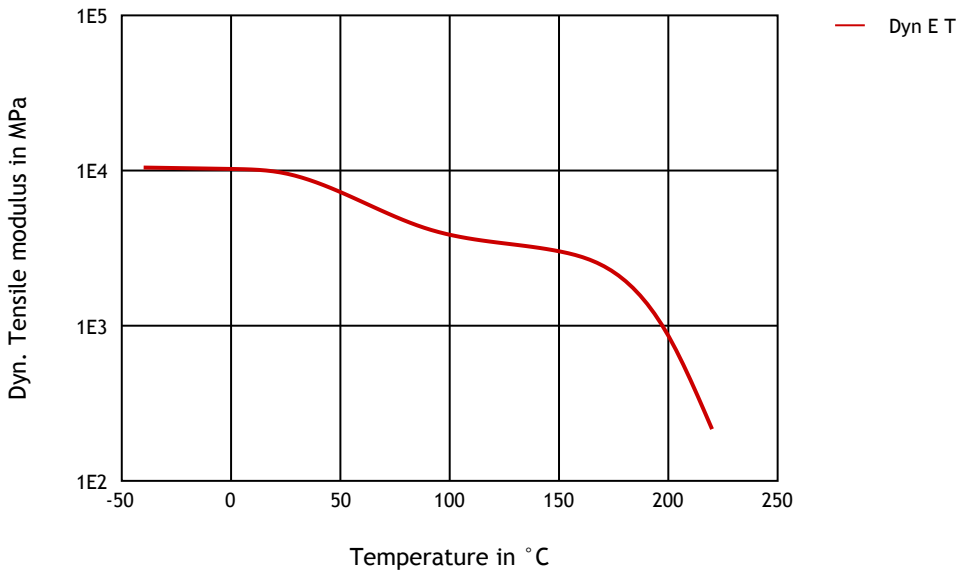
Dynamic Tensile modulus-temperature



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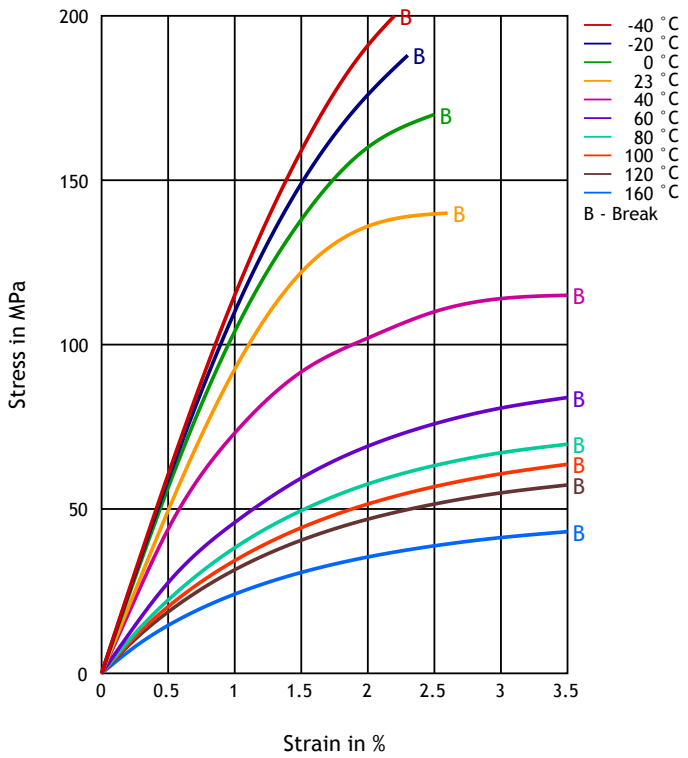
Stress-strain



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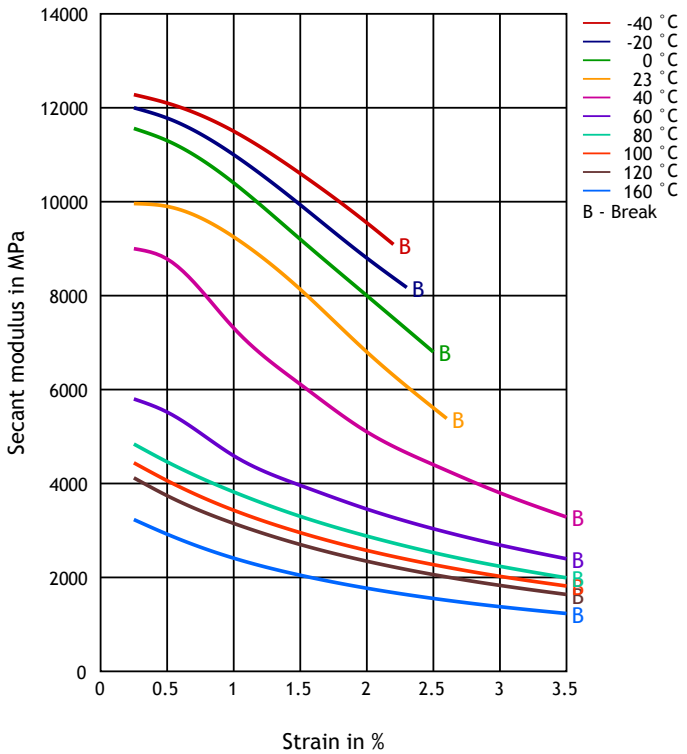
Secant modulus-strain



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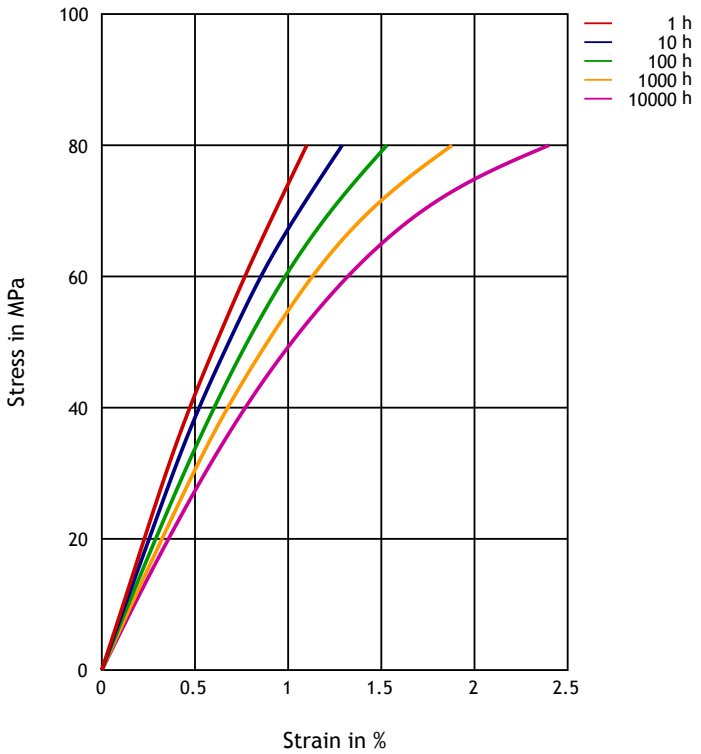
THERMOPLASTIC POLYESTER RESIN

Stress-strain (isochronous) 23°C



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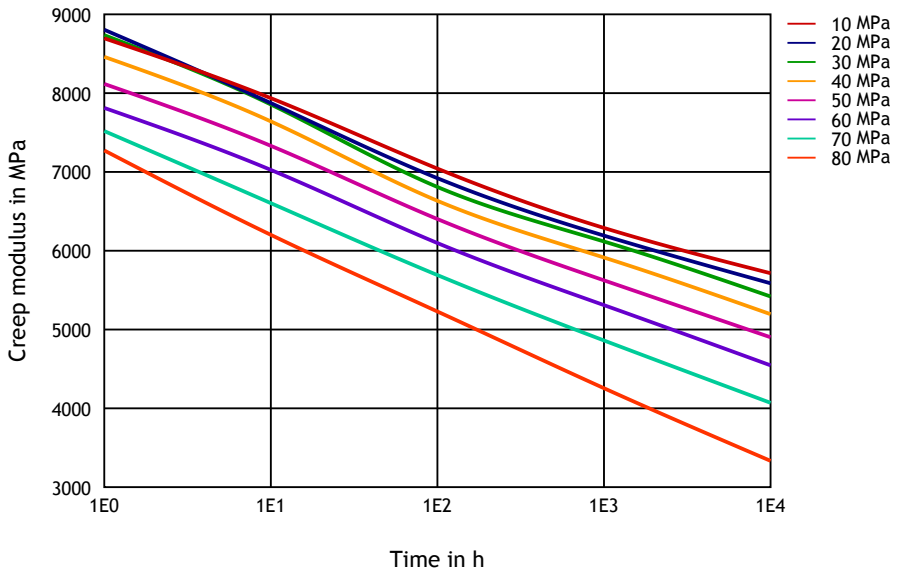
THERMOPLASTIC POLYESTER RESIN

Creep modulus-time 23°C



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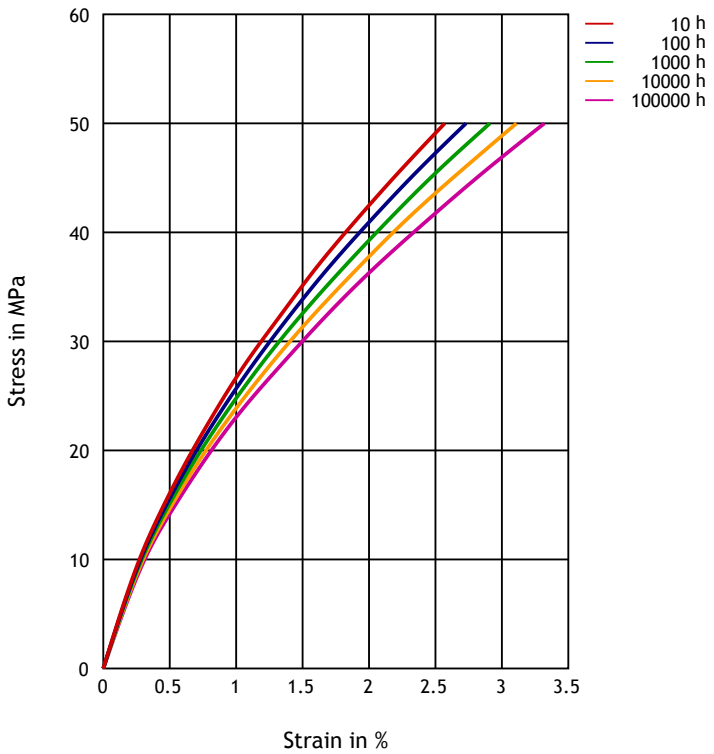
THERMOPLASTIC POLYESTER RESIN

Stress-strain (isochronous) 90°C



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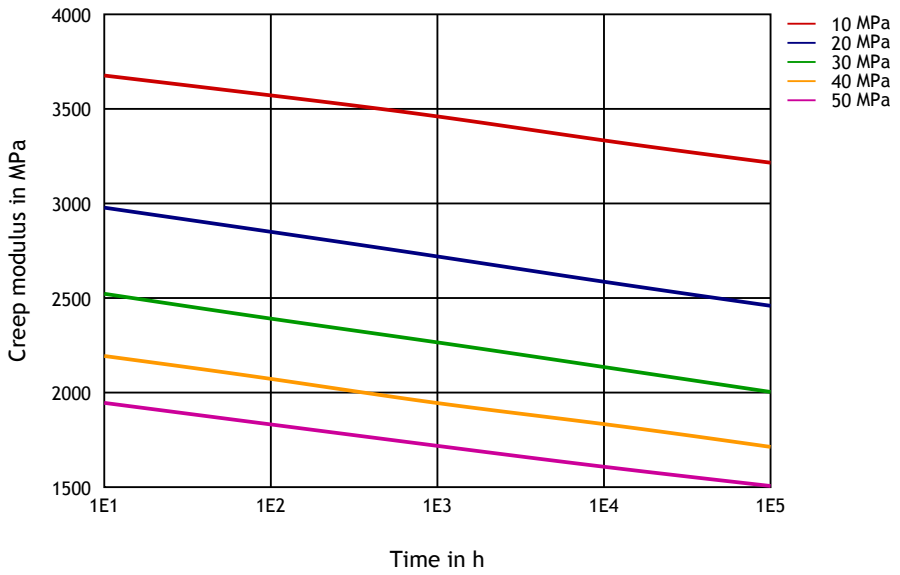
THERMOPLASTIC POLYESTER RESIN

Creep modulus-time 90°C



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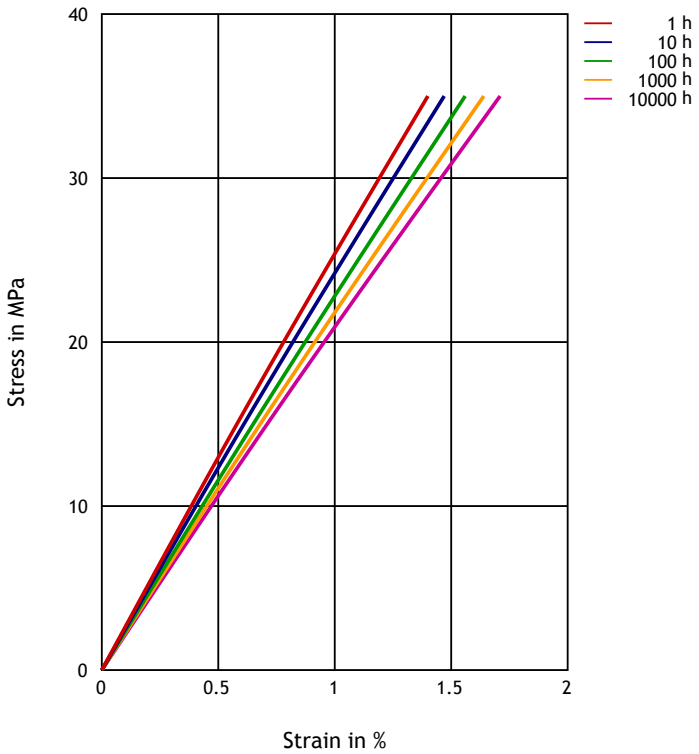
THERMOPLASTIC POLYESTER RESIN

Stress-strain (isochronous) 120°C



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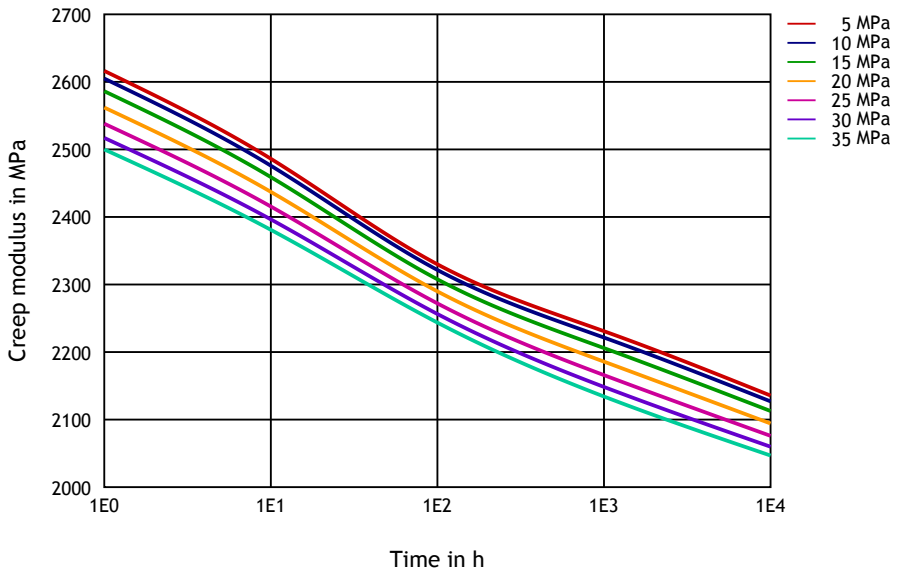
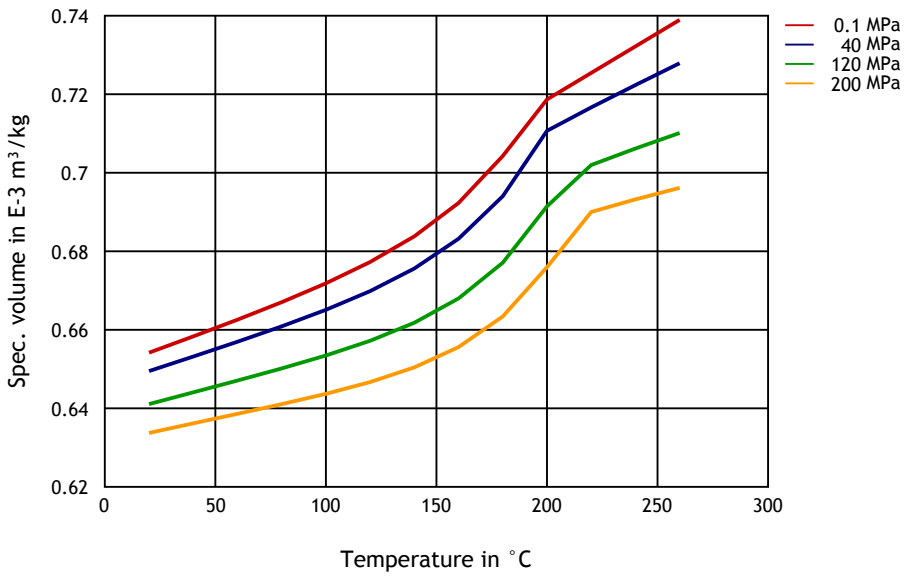
THERMOPLASTIC POLYESTER RESIN

Creep modulus-time 120°C



Specific volume-temperature (pvT)



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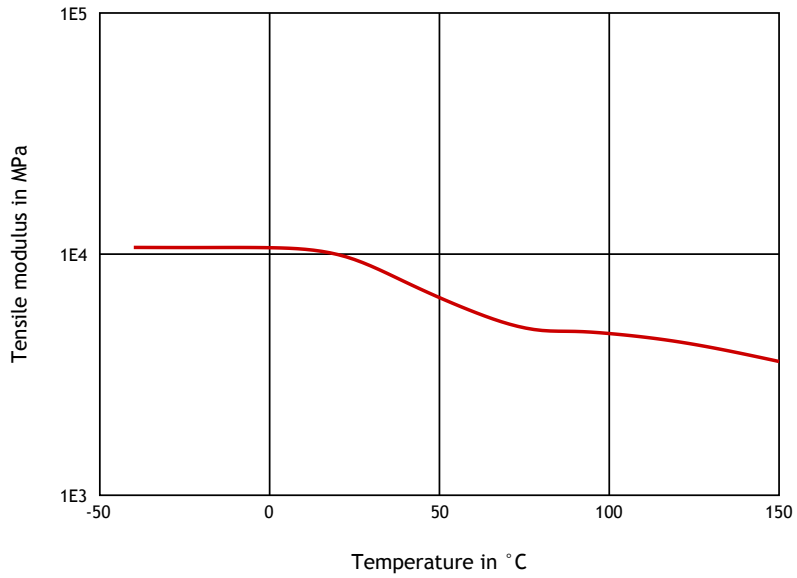
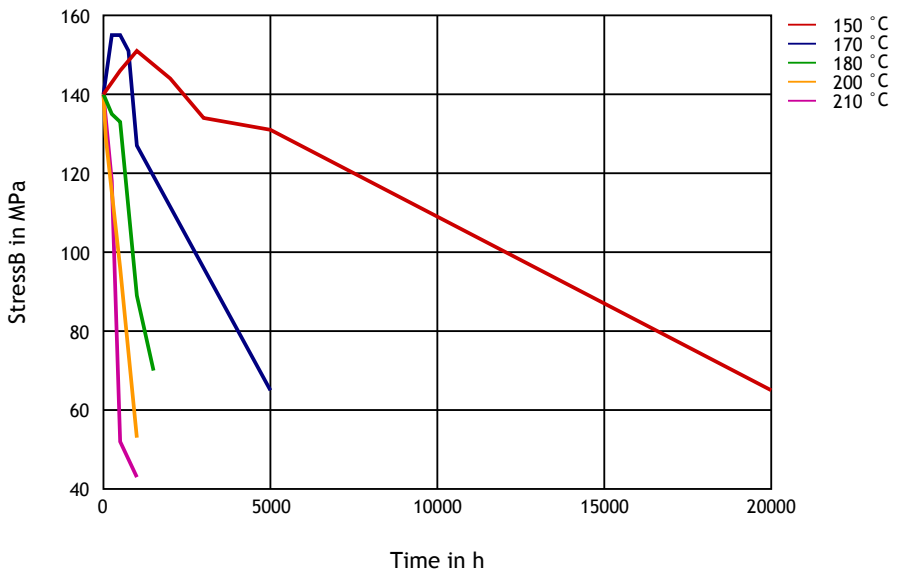
Tensile modulus-temperature



LTHA-Stress at Break 4mm



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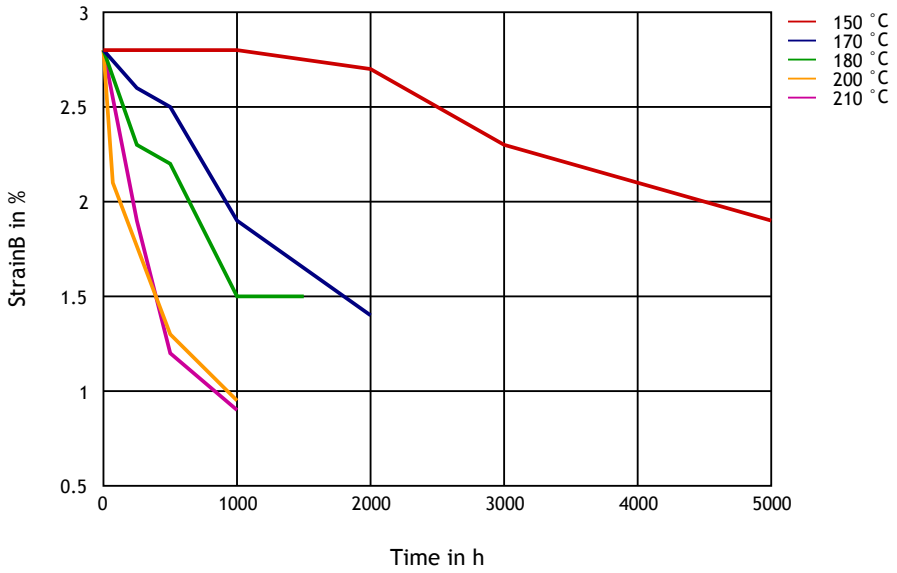
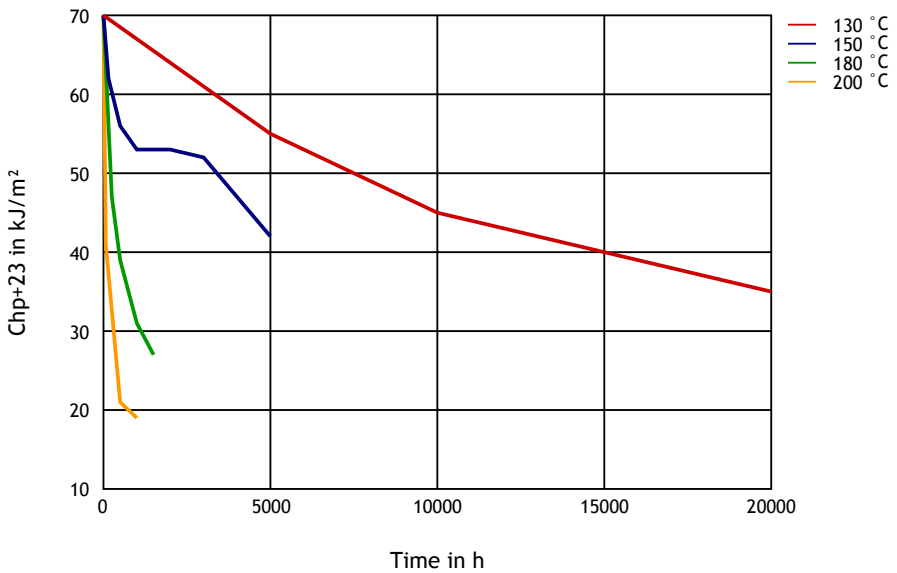
LTHA-Strain at Break 4mm



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



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)
- ✗ Motor oil OS206 304 Ref.Eng.Oil, ISP (135°C)
- ✗ Automatic hypoid-gear oil Shell Donax TX (135°C)
- ✗ Hydraulic oil Pentosin CHF 202 (125°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

✓	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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