Celanese
The chemistry inside innovation™

Crastin® S600F20 NC010

THERMOPLASTIC POLYESTER RESIN

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, 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.

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® S600F20 NC010 is an unreinforced, lubricated, medium viscosity polybutylene terephthalate resin for injection moulding.

Product information

Resin Identification	PBT	ISO 1043
Part Marking Code	>PBT<	ISO 11469
ISO designation	ISO 7792-PBT,MGNR,11-030	

Rheological properties

Melt volume-flow rate	17	cm^3/10min	ISO 1133
Temperature	250	°C	
Load	2.16	kg	
Melt mass-flow rate	19	g/10min	ISO 1133
Melt mass-flow rate, Temperature	250	°C	
Melt mass-flow rate, Load	2.16	kg	
Viscosity number	130	cm^3/g	ISO 307, 1628
Intrinsic viscosity	1.08		ISO 307, 1628
Moulding shrinkage, parallel	1.7	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.6	%	ISO 294-4, 2577
Postmoulding shrinkage, normal, 48h at 80°C	0.5	%	ISO 294-4
Postmoulding shrinkage, parallel, 48h at 80°C	0.3	%	ISO 294-4

Typical mechanical properties

Tensile modulus	2500	MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	55	MPa	ISO 527-1/-2
Tensile strain at yield, 50mm/min	4	%	ISO 527-1/-2
Nominal strain at break	40	%	ISO 527-1/-2
Tensile strain at break, 50mm/min	>50	%	ISO 527-1/-2
Flexural modulus	2200	MPa	ISO 178
Flexural strength	85	MPa	ISO 178
Tensile creep modulus, 1h	2600	MPa	ISO 899-1
Tensile creep modulus, 1000h	1800	MPa	ISO 899-1
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	5	kJ/m^2	ISO 179/1eA
Charpy notched impact strength, -30°C	4	kJ/m^2	ISO 179/1eA

Celanese
The chemistry inside innovation™

Crastin® S600F20 NC010

THERMOPLASTIC POLYESTER RESIN

Izod notched impact strength, 23°C	4.5	kJ/m²	ISO 180/1A
Izod impact strength, 23°C	N	kJ/m²	ISO 180/1U
Ball indentation hardness, H 961/30	139	MPa	ISO 2039-1
Poisson's ratio	0.38		

Tribological properties

Coefficient of static friction, against itself	0.4		ISO 8295
Coefficient of static friction, against steel	0.4		ISO 8295

Thermal properties

Melting temperature, 10°C/min	225	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	55	°C	ISO 11357-1/-3
Freezing temperature, 10°C/min	192	°C	ISO 11357-1/-2
Temperature of deflection under load, 1.8 MPa	50	°C	ISO 75-1/-2
Temperature of deflection under load, 1.8 MPa, annealed	60	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	115	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa, annealed	180	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	175	°C	ISO 306
Coeff. of linear therm. expansion, parallel, -40-23°C	80	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	110	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160°C	190	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	90	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	120	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	200	E-6/K	ISO 11359-1/-2
Thermal conductivity, flow	0.29	W/(m K)	ISO 22007-2
Thermal conductivity of melt	0.21	W/(m K)	ISO 22007-2
Specific heat capacity of melt	2110	J/(kg K)	ISO 22007-4
RTI, electrical, 0.75mm	130	°C	UL 746B
RTI, electrical, 1.5mm	130	°C	UL 746B
RTI, electrical, 3.0mm	130	°C	UL 746B
RTI, electrical, 6mm	130	°C	UL 746B
RTI, impact, 0.75mm	115	°C	UL 746B
RTI, impact, 1.5mm	115	°C	UL 746B
RTI, impact, 3.0mm	115	°C	UL 746B
RTI, impact, 6mm	115	°C	UL 746B
RTI, strength, 0.75mm	120	°C	UL 746B
RTI, strength, 1.5mm	120	°C	UL 746B
RTI, strength, 3.0mm	120	°C	UL 746B
RTI, strength, 6mm	120	°C	UL 746B
TGA curve	available		ISO 11359-1/-2

Celanese
The chemistry inside innovation™

Crastin® S600F20 NC010

THERMOPLASTIC POLYESTER RESIN

Flammability

Burning Behav. at 1.5mm nom. thickn.	HB	class	IEC 60695-11-10
Thickness tested	1.5	mm	IEC 60695-11-10
UL recognition	yes		UL 94
Burning Behav. at thickness h	HB	class	IEC 60695-11-10
Thickness tested	0.8	mm	IEC 60695-11-10
Oxygen index	22	%	ISO 4589-1/-2
Glow Wire Flammability Index, 3.0mm	750	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 0.75mm	750	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.0mm	750	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.5mm	750	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 2.0mm	750	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3.0mm	725	°C	IEC 60695-2-13
FMVSS Class	SE		ISO 3795 (FMVSS 302)

Electrical properties

Relative permittivity, 100Hz	3.6		IEC 62631-2-1
Relative permittivity, 1MHz	3.2		IEC 62631-2-1
Dissipation factor, 100Hz	7.9	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	200	E-4	IEC 62631-2-1
Volume resistivity	>1E13	Ohm.m	IEC 62631-3-1
Surface resistivity	1E12	Ohm	IEC 62631-3-2
Electric strength	26	kV/mm	IEC 60243-1
Comparative tracking index	600		IEC 60112
Comparative tracking index, 100 drops	575		IEC 60112

Physical/Other properties

Humidity absorption, 2mm	0.2	%	Sim. to ISO 62
Water absorption, 2mm	0.4	%	Sim. to ISO 62
Density	1310	kg/m³	ISO 1183
Density of melt	1110	kg/m³	

VDA Properties

Thermal desorption analysis of organic emissions	1 [AMax]	µg/g	VDA 278
Odour	3 [DS]	class	VDA 270
Fogging, G-value (condensate)	0	mg	ISO 6452

[AMax]: Assessed (Max)

[DS]: Derived from similar grade

Injection

Drying Recommended	yes	
Drying Temperature	120	°C
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.04	%
Melt Temperature Optimum	250	°C
Min. melt temperature	240	°C
Max. melt temperature	260	°C

Celanese
The chemistry inside innovation™

Crastin® S600F20 NC010

THERMOPLASTIC POLYESTER RESIN

Mold Temperature Optimum	80	°C
Min. mould temperature	60	°C
Max. mould temperature	130	°C
Hold pressure range	≥60	MPa
Hold pressure time	4	s/mm
Back pressure	As low as possible	MPa
Ejection temperature	162	°C

Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Additives	Release agent

Automotive

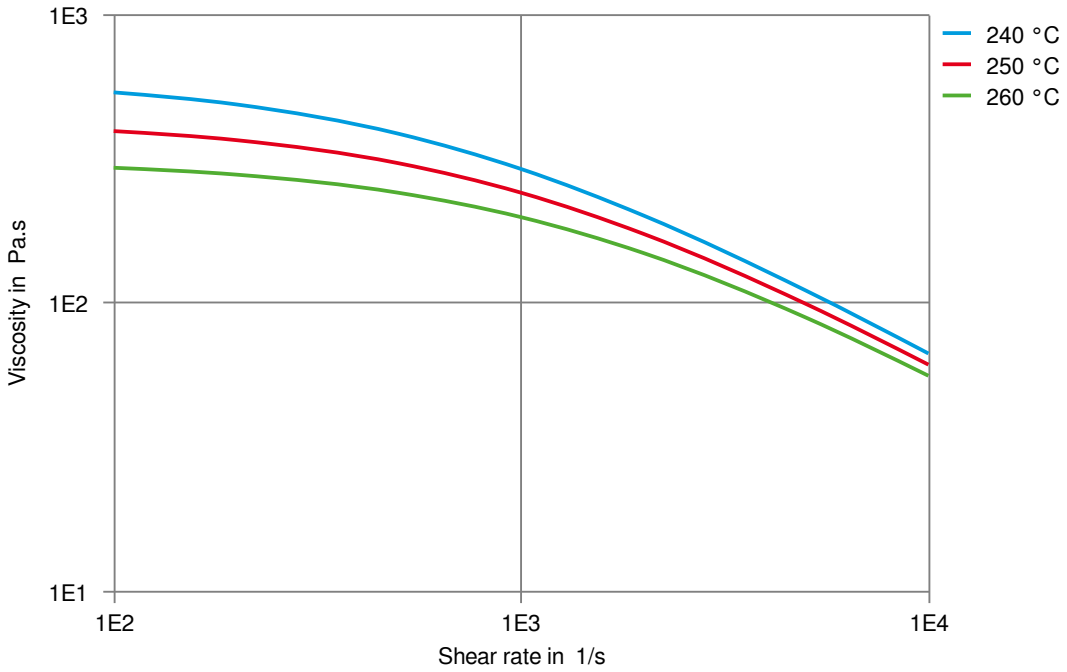
OEM	STANDARD	ADDITIONAL INFORMATION
Ford	WSK-M4D636-A	
Hyundai	MS941-03 Type F-1	
Stellantis	MS.50103 / PBT.2200F.5I	CPN4478 NATURAL
Stellantis - Chrysler	MS.50103 / CPN-4478	Natural

Celanese
The chemistry inside innovation™

Crastin® S600F20 NC010

THERMOPLASTIC POLYESTER RESIN

Viscosity-shear rate

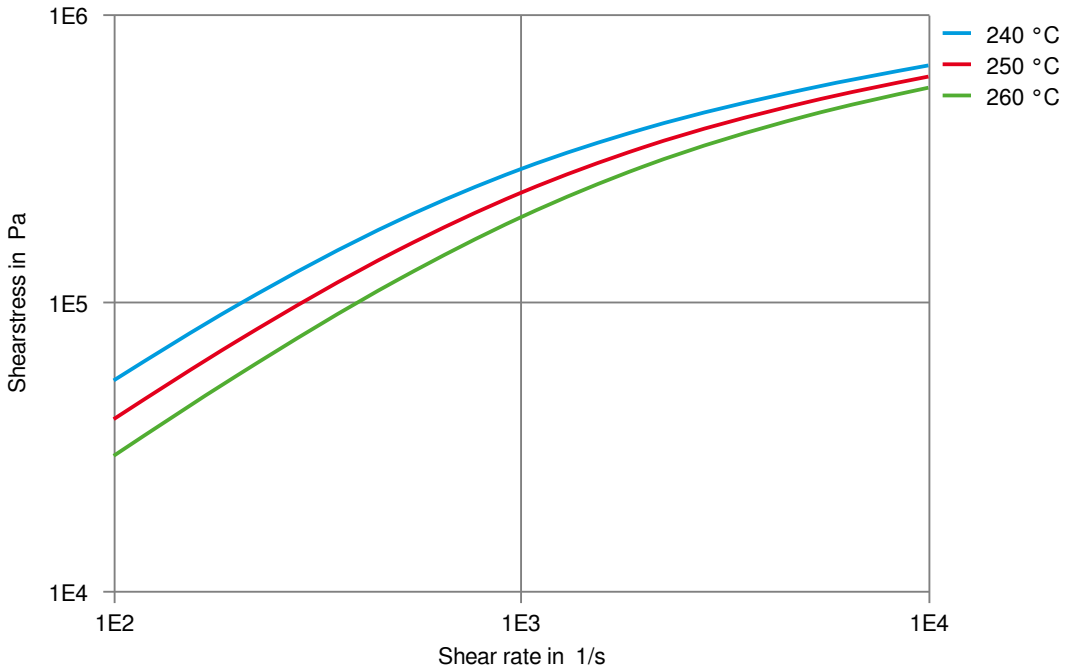


Celanese
The chemistry inside innovation™

Crastin® S600F20 NC010

THERMOPLASTIC POLYESTER RESIN

Shearstress-shear rate

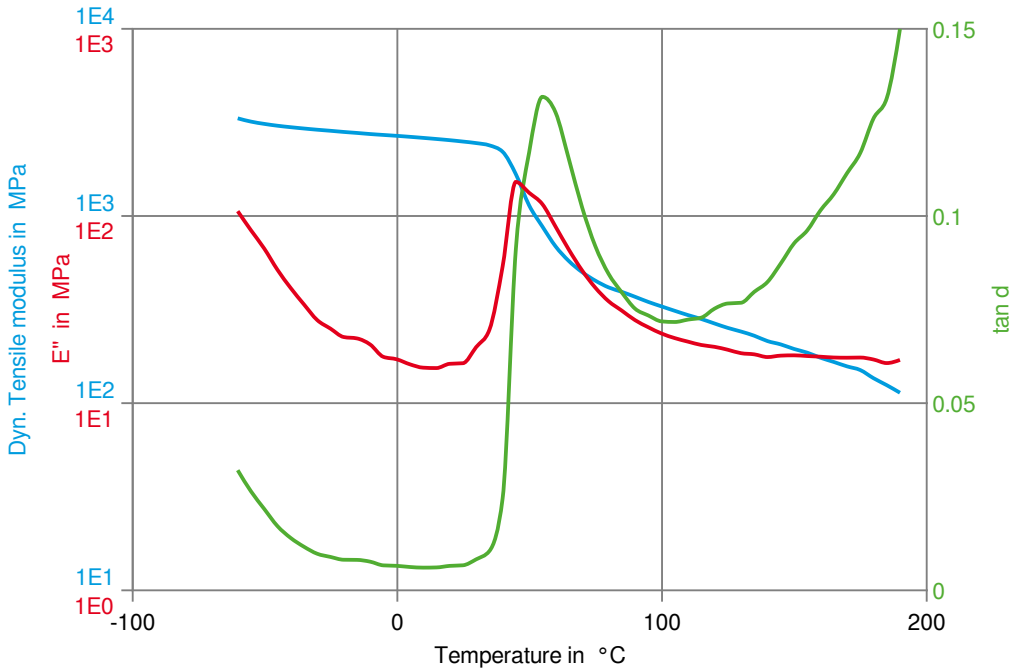


Celanese
The chemistry inside innovation™

Crastin® S600F20 NC010

THERMOPLASTIC POLYESTER RESIN

Dynamic Tensile modulus-temperature

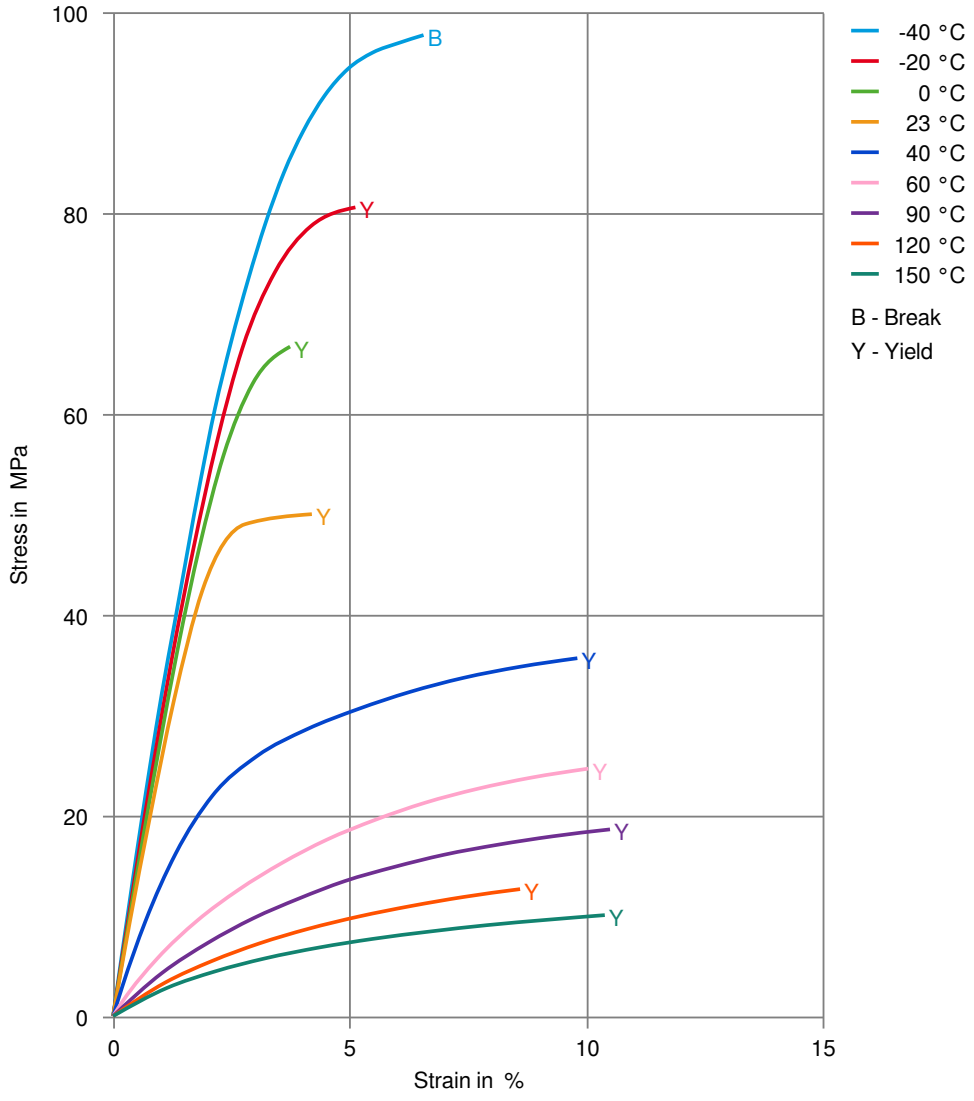


Celanese
The chemistry inside innovation™

Crastin® S600F20 NC010

THERMOPLASTIC POLYESTER RESIN

Stress-strain

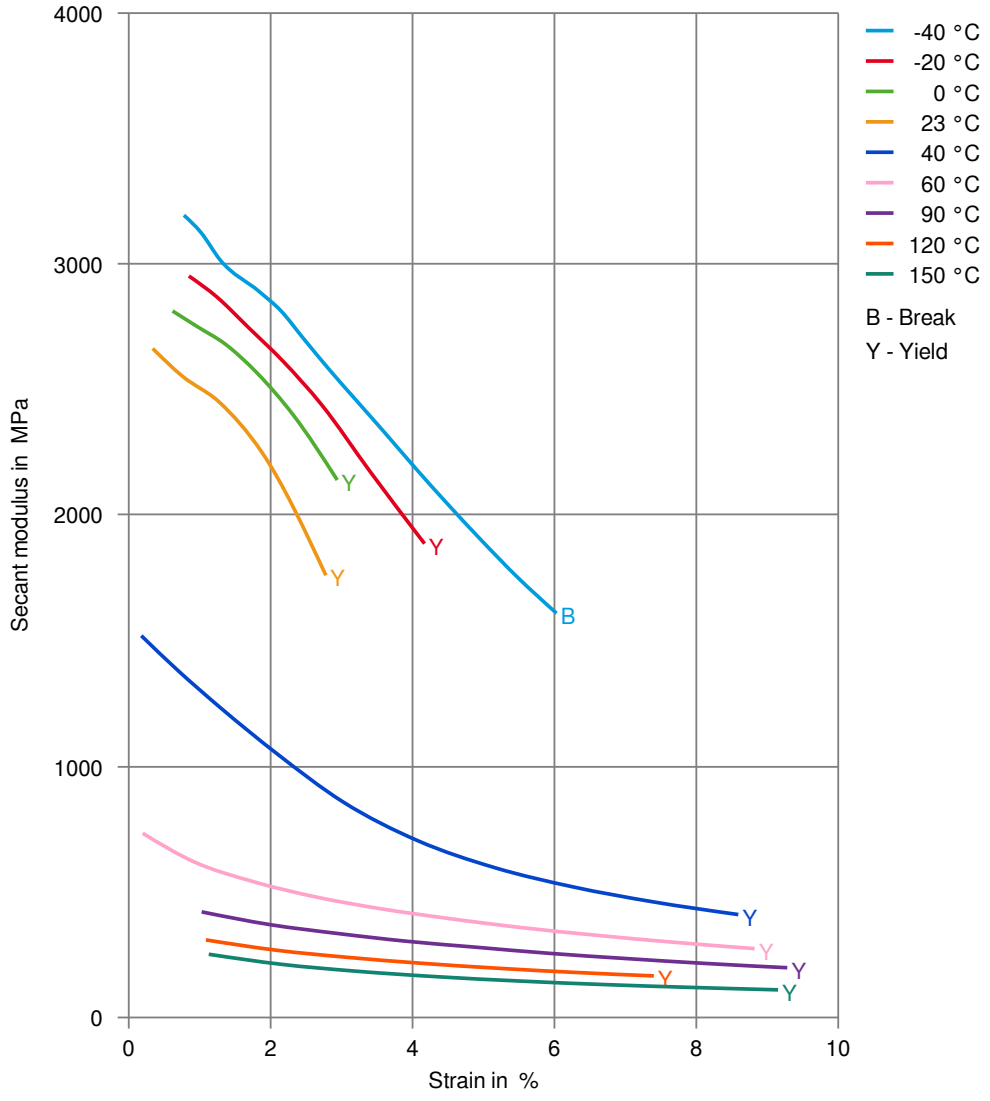


Celanese
The chemistry inside innovation™

Crastin® S600F20 NC010

THERMOPLASTIC POLYESTER RESIN

Secant modulus-strain

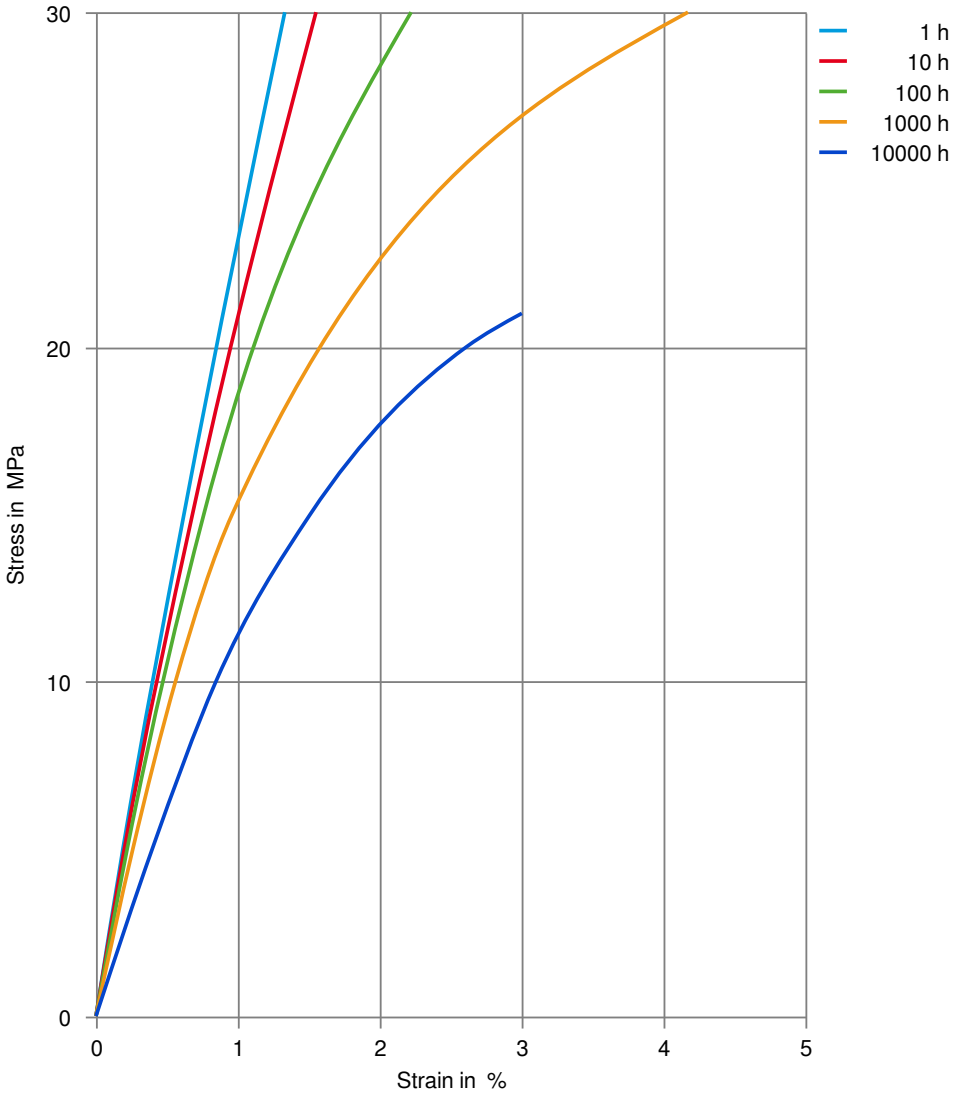


Celanese
The chemistry inside innovation™

Crastin® S600F20 NC010

THERMOPLASTIC POLYESTER RESIN

Stress-strain (isochronous) 23 °C

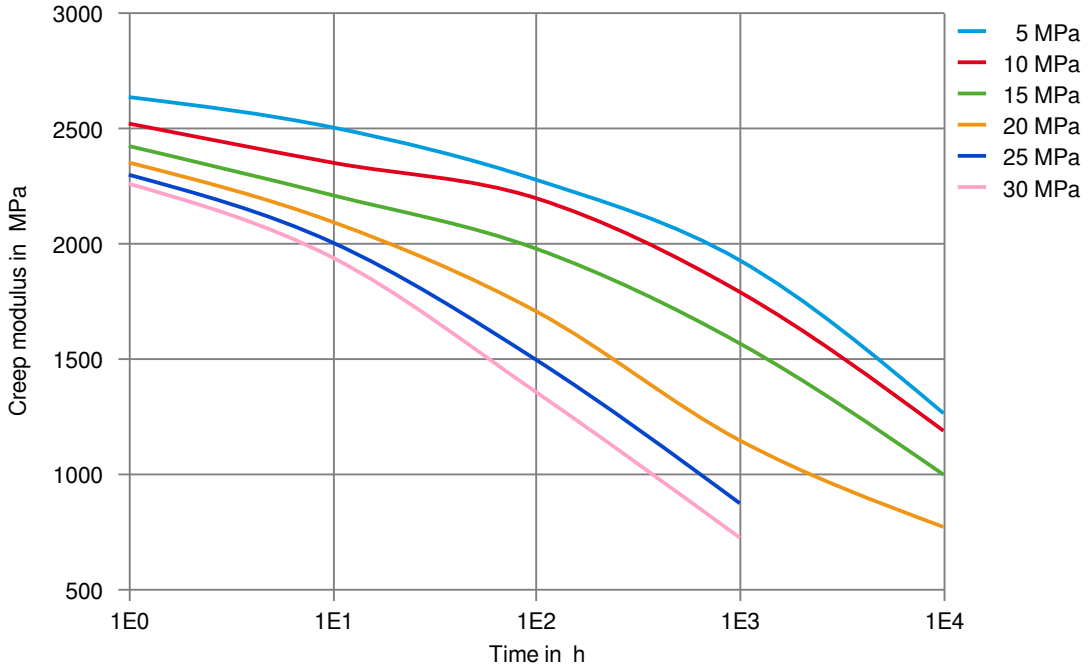


Celanese
The chemistry inside innovation™

Crastin® S600F20 NC010

THERMOPLASTIC POLYESTER RESIN

Creep modulus-time 23 °C

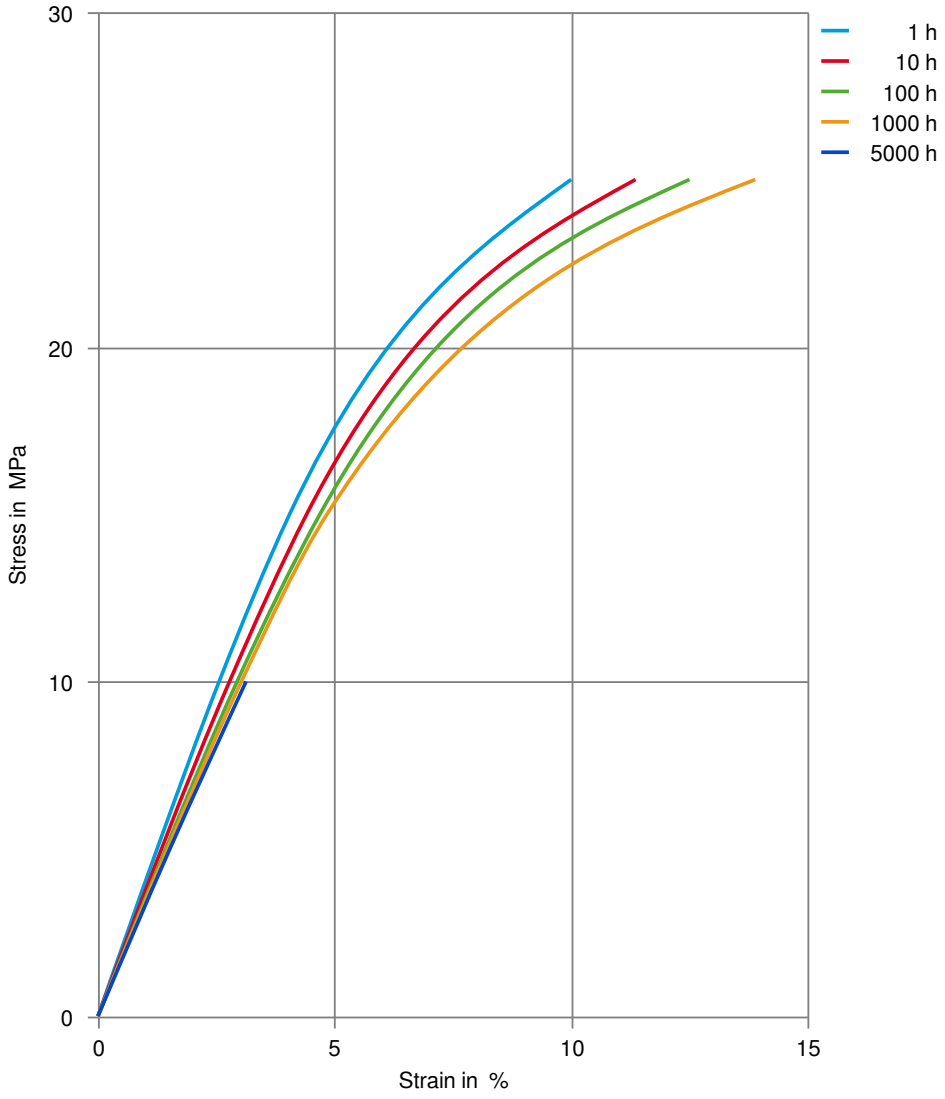


Celanese
The chemistry inside innovation™

Crastin® S600F20 NC010

THERMOPLASTIC POLYESTER RESIN

Stress-strain (isochronous) 60 °C

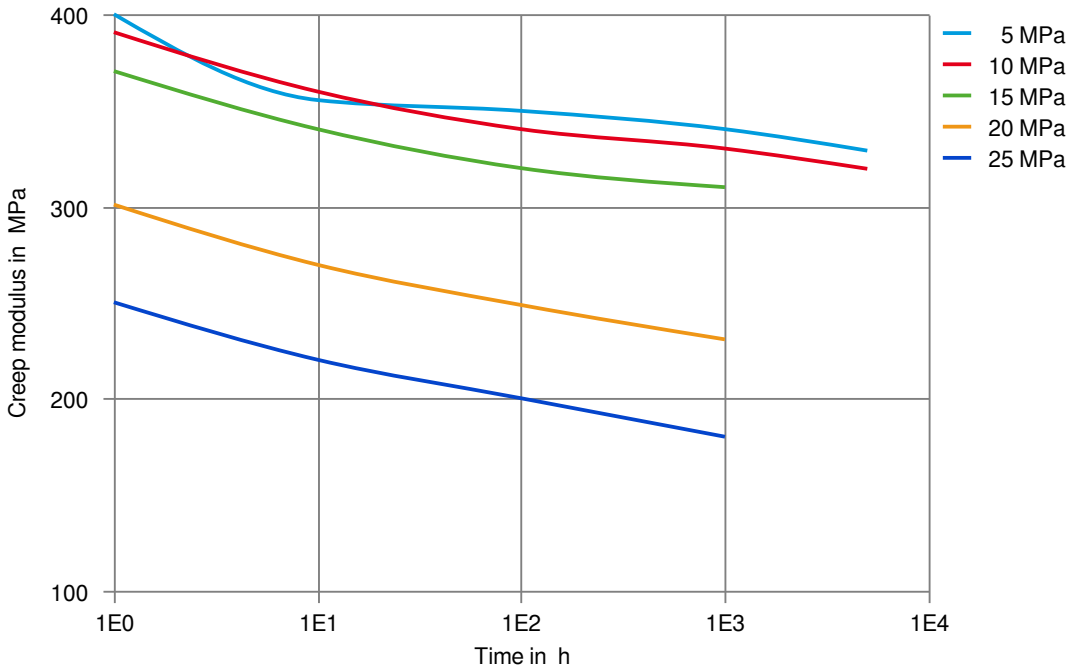


Celanese
The chemistry inside innovation™

Crastin® S600F20 NC010

THERMOPLASTIC POLYESTER RESIN

Creep modulus-time 60 °C

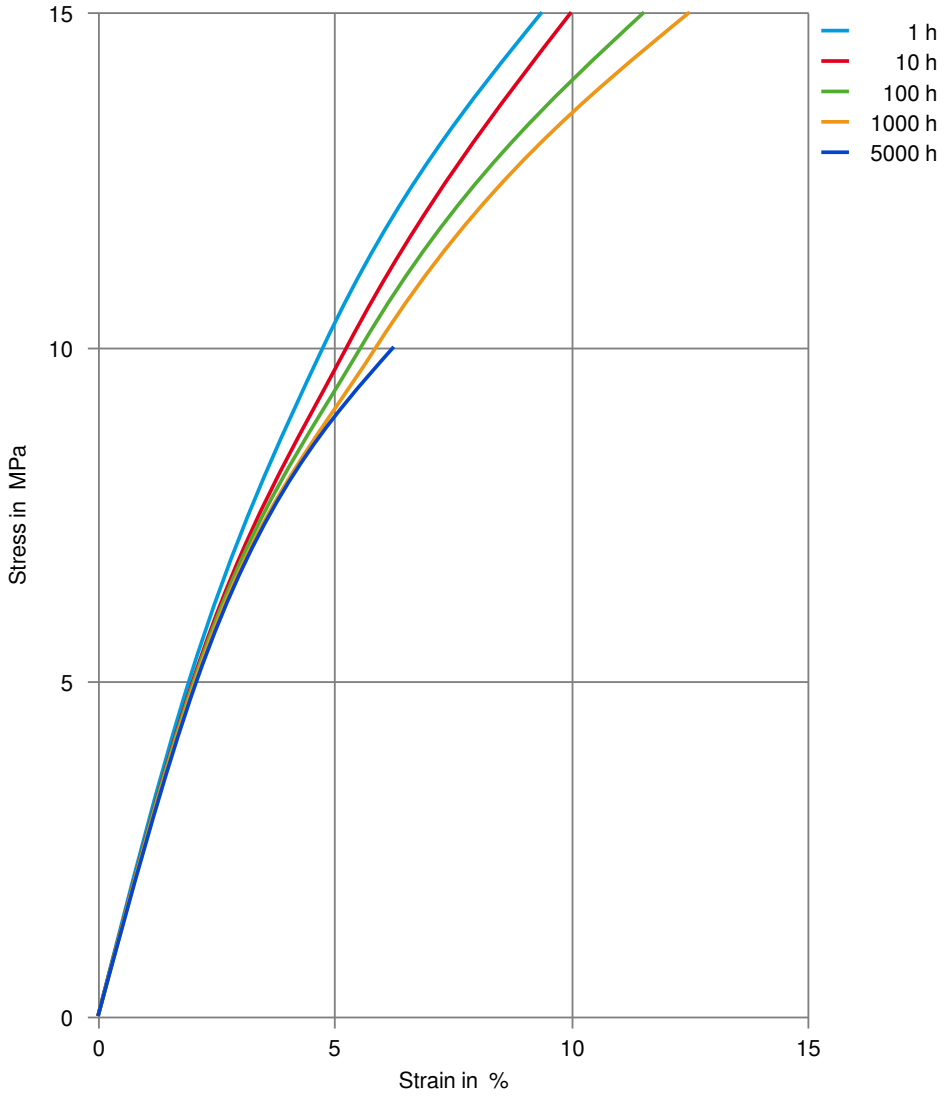


Celanese
The chemistry inside innovation™

Crastin® S600F20 NC010

THERMOPLASTIC POLYESTER RESIN

Stress-strain (isochronous) 110 °C

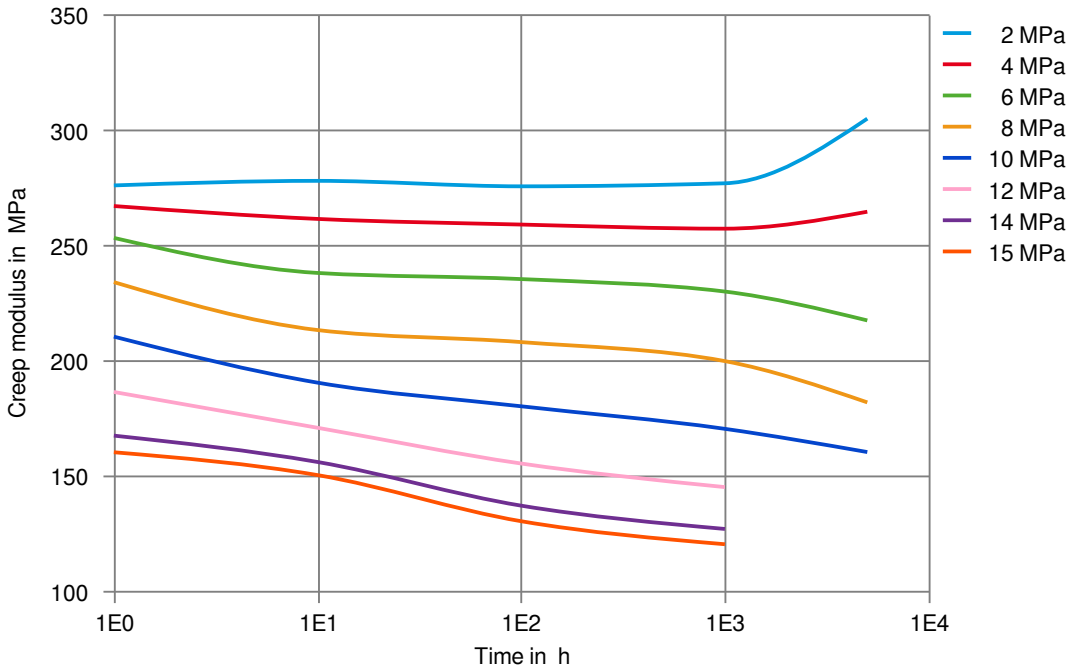


Celanese
The chemistry inside innovation™

Crastin® S600F20 NC010

THERMOPLASTIC POLYESTER RESIN

Creep modulus-time 110 °C

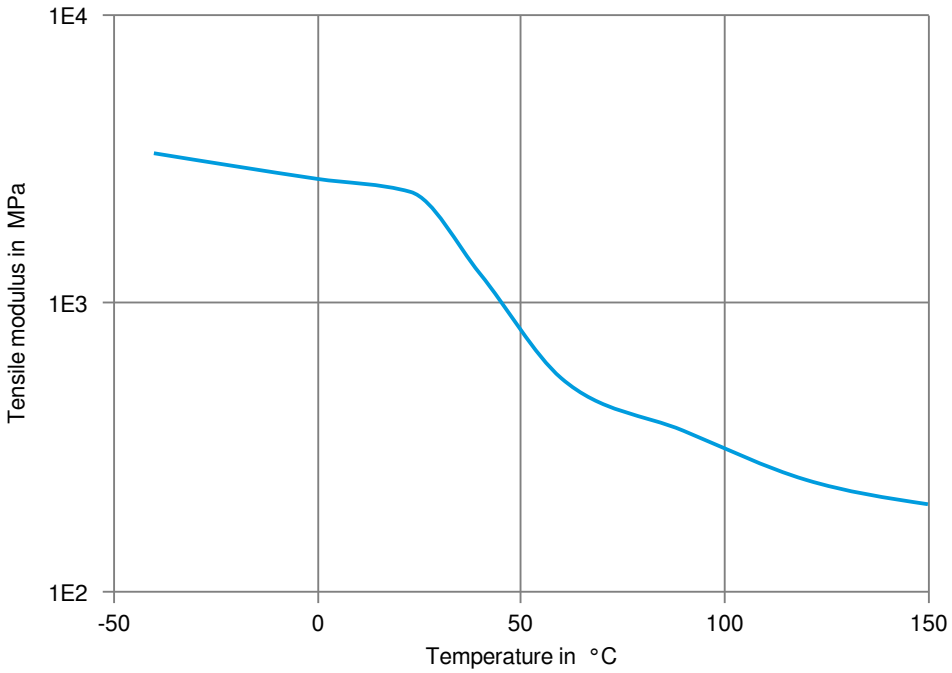


Celanese
The chemistry inside innovation™

Crastin® S600F20 NC010

THERMOPLASTIC POLYESTER RESIN

Tensile modulus-temperature



Celanese
The chemistry inside innovation™

Crastin® S600F20 NC010

THERMOPLASTIC POLYESTER RESIN

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

Salt solutions

- ✔ Sodium Chloride solution (10% by mass), 23°C
- ✔ Sodium Hypochlorite solution (10% by mass), 23°C

Celanese
The chemistry inside innovation™

Crastin® S600F20 NC010

THERMOPLASTIC POLYESTER RESIN

- ✔ 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).

Revised: 2025-04-21 Source: Celanese Materials Database