

DuPont™ Crastin® SK612SF 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® SK612SF is a 15% glass fiber reinforced, low viscosity polybutylene terephthalate for injection moulding. It has high flow characteristics and is specifically suitable for .

General information	Value	Unit	Test Standard
Resin Identification	PBT-GF15	-	ISO 1043
Part Marking Code	PBT-GF15	-	ISO 11469
Rheological properties	Value	Unit	Test Standard
Moulding shrinkage, parallel	0.4	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.1	%	ISO 294-4, 2577
Flow length	450	mm	-
Flow length - pressure	80	MPa	-
Flow length - width/thickness	2	mm	-
Mechanical properties	Value	Unit	Test Standard
Tensile Modulus	5800	MPa	ISO 527-1/-2
Stress at break	106	MPa	ISO 527-1/-2
Strain at break	3.2	%	ISO 527-1/-2
Poisson's ratio	0.35	-	ISO 527-1/-2
Charpy impact strength			ISO 179/1eU
23 °C	30	kJ/m ²	
-30 °C	30	kJ/m ²	
Charpy notched impact strength, 23 °C	6	kJ/m ²	ISO 179/1eA
Thermal properties	Value	Unit	Test Standard
Melting temperature, 10 °C/min	224	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	200	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel	50	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	95	E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.24	W/(m K)	-
Spec. heat capacity of melt	1900	J/(kg K)	-
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	yes	-	UL 94
Burning Behav. at thickness h	HB	class	IEC 60695-11-10
Thickness tested	3	mm	IEC 60695-11-10
UL recognition	yes	-	UL 94
Oxygen index	19	%	ISO 4589-1/-2
Glow Wire Flammability Index, 3mm	700	°C	IEC 60695-2-12
FMVSS Class	B	-	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	30	mm/min	ISO 3795 (FMVSS 302)
Electrical properties	Value	Unit	Test Standard

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Relative permittivity			IEC 62631-2-1
100Hz	3.8	-	
1MHz	3.2	-	
Dissipation factor			IEC 62631-2-1
100Hz	20	E-4	
1MHz	190	E-4	
Volume resistivity	>1E13	Ohm*m	IEC 62631-3-1
Surface resistivity	1E15	Ohm	IEC 62631-3-2
Electric strength	37	kV/mm	IEC 60243-1
Comparative tracking index	350	-	IEC 60112
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	1410	kg/m ³	ISO 1183
Density of melt	1220	kg/m ³	-
VDA Properties	Value	Unit	Test Standard
Emission of organic compounds	140	µgC/g	VDA 277
Odour	3	class	VDA 270
Fogging, G-value (condensate)	0.1	mg	ISO 6452
Injection	Value	Unit	Test Standard
Drying Recommended	yes	-	-
Drying Temperature	≥120	°C	-
Drying Time, Dehumidified Dryer	2 - 4	h	-
Processing Moisture Content	≤0.04	%	-
Melt Temperature Optimum	240	°C	-
Min. melt temperature	235	°C	-
Max. melt temperature	260	°C	-
Mold Temperature Optimum	80	°C	-
Min. mould temperature	30	°C	-
Max. mould temperature	130	°C	-
Hold pressure range	≥60	MPa	-
Hold pressure time	3	s/mm	-
Back pressure	As low as possible		-
Ejection temperature	170	°C	-

Characteristics

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

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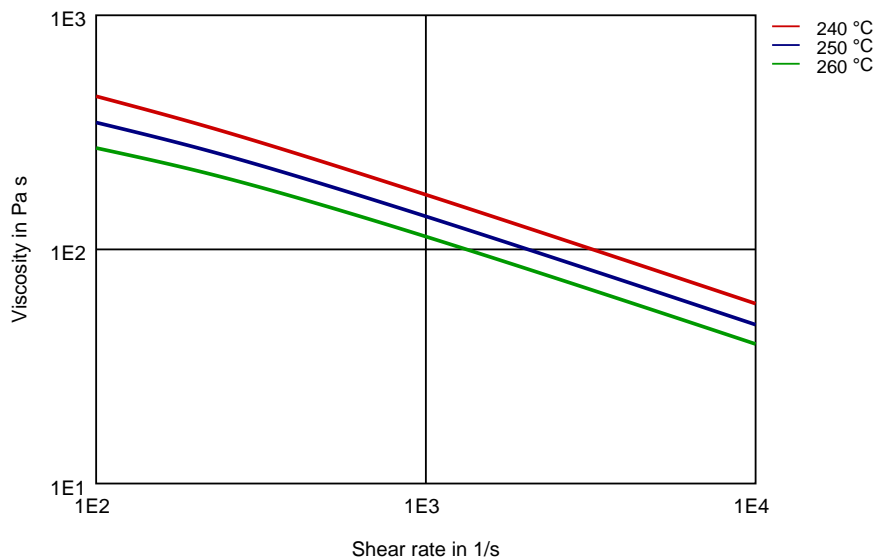
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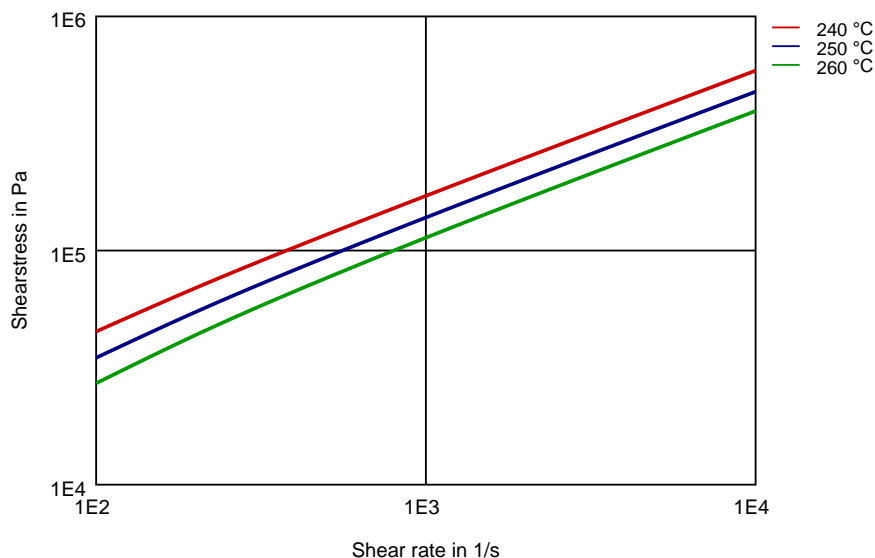
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Diagrams

Viscosity-shear rate



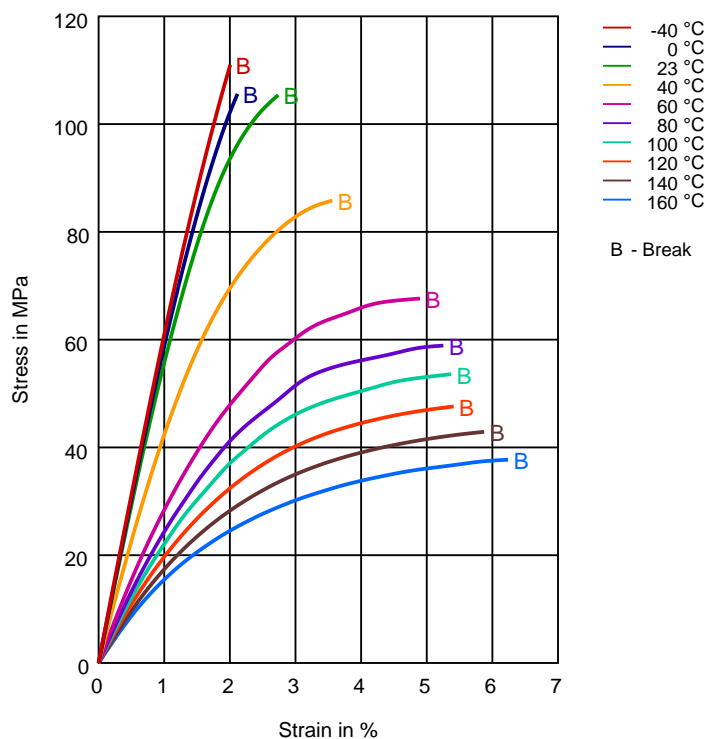
Shearstress-shear rate



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Stress-strain



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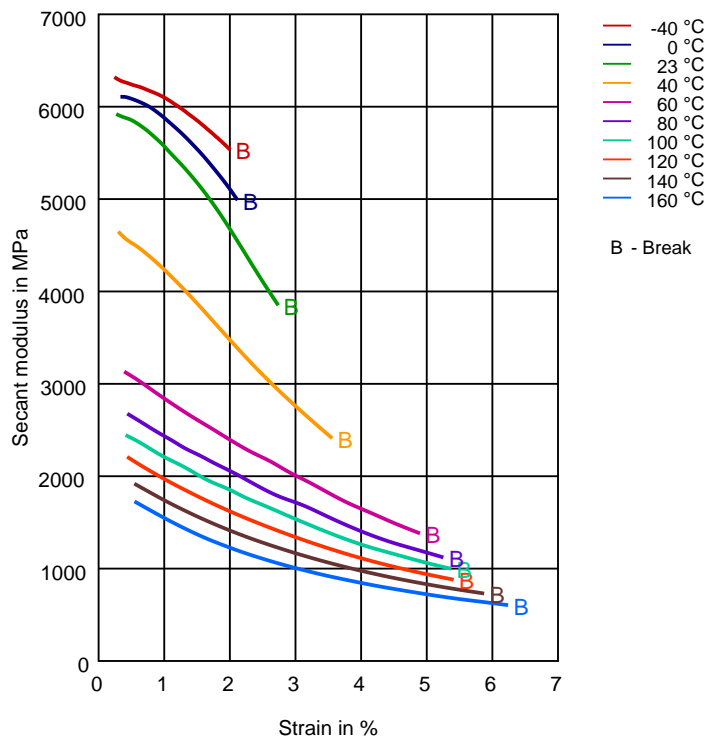
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Secant modulus-strain



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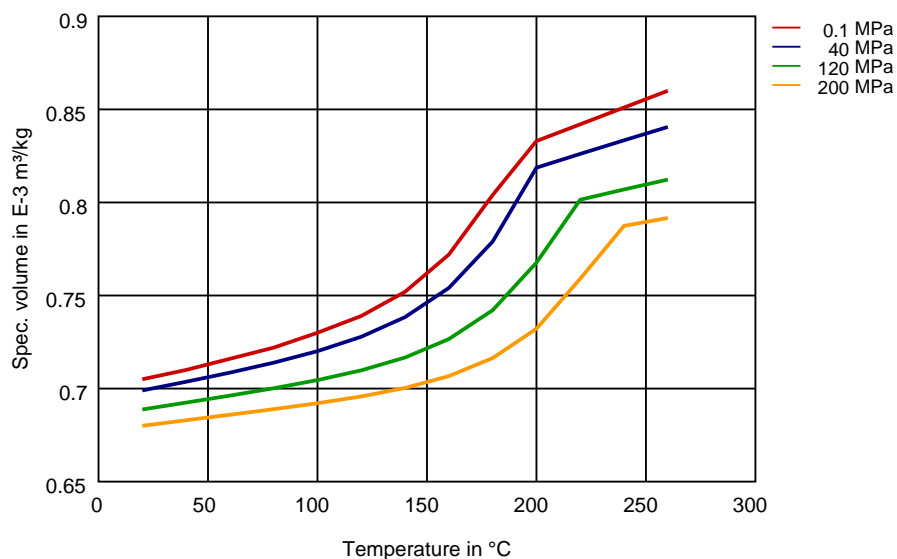
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Specific volume-temperature (pvT)



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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)



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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)

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 4mm (Hytrel® measured at 2 mm), IEC Electrical properties measured at 2mm, all ASTM properties measured at 3.2mm, and test temperatures are 23°C unless otherwise stated.

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