

# DuPont™ Crastin® BM6450XD BK560 (Preliminary Data)

## 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® BM6450XD BK560 is an unreinforced supertough polybutylene terephthalate resin with very high viscosity for extrusion and blow moulding applications.**

General information	Value	Unit	Test Standard
Resin Identification	PBT-F	-	-
Part Marking Code	>PBT-F<	-	ISO 11469
Rheological properties	Value	Unit	Test Standard
Moulding shrinkage, parallel	1.5	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.7	%	ISO 294-4, 2577
Mechanical properties	Value	Unit	Test Standard
Tensile Modulus	1600	MPa	ISO 527-1/-2
Yield stress	34	MPa	ISO 527-1/-2
Yield strain	9	%	ISO 527-1/-2
Nominal strain at break	>50	%	ISO 527-1/-2
Flexural Modulus	1600	MPa	ISO 178
Flexural Strength	50	MPa	ISO 178
Charpy impact strength			ISO 179/1eU
23 °C	N	kJ/m <sup>2</sup>	
-30 °C	N	kJ/m <sup>2</sup>	
Charpy notched impact strength			ISO 179/1eA
23 °C	120	kJ/m <sup>2</sup>	
-30 °C	10	kJ/m <sup>2</sup>	
Izod notched impact strength, 23 °C	90	kJ/m <sup>2</sup>	ISO 180/1A
Thermal properties	Value	Unit	Test Standard
Melting temperature, 10 °C/min	220	°C	ISO 11357-1/-3
Temp. of deflection under load			ISO 75-1/-2
1.8 MPa	50	°C	
0.45 MPa	80	°C	
0.45 MPa, annealed	130	°C	
Thermal conductivity of melt	0.15	W/(m K)	-
Spec. heat capacity of melt	2210	J/(kg K)	-
Electrical properties	Value	Unit	Test Standard
Dissipation factor			IEC 60250
100Hz	70	E-4	
1MHz	200	E-4	
Volume resistivity	>1E13	Ohm*m	IEC 60093
Surface resistivity	>1E15	Ohm	IEC 60093
Electric strength	31	kV/mm	IEC 60243-1
Other properties	Value	Unit	Test Standard
Density	1210	kg/m <sup>3</sup>	ISO 1183

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

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Density of melt	1030	kg/m <sup>3</sup>	-
VDA Properties		Value	Unit
Burning rate, Thickness 1 mm		40	mm/min
			Test Standard
			ISO 3795 (FMVSS 302)

Characteristics			
Processing	<ul style="list-style-type: none"> <li>Film Extrusion</li> <li>Profile Extrusion</li> <li>Sheet Extrusion</li> </ul>	<ul style="list-style-type: none"> <li>Other Extrusion</li> <li>Coatable</li> <li>Blow Moulding</li> </ul>	<ul style="list-style-type: none"> <li>Casting</li> </ul>
Delivery form	<ul style="list-style-type: none"> <li>Pellets</li> </ul>		
Additives	<ul style="list-style-type: none"> <li>Release agent</li> </ul>		
Regional Availability	<ul style="list-style-type: none"> <li>North America</li> <li>Europe</li> </ul>	<ul style="list-style-type: none"> <li>Asia Pacific</li> <li>South and Central America</li> </ul>	<ul style="list-style-type: none"> <li>Near East/Africa</li> <li>Global</li> </ul>

### Processing Texts

#### Blow molding

##### PREPROCESSING

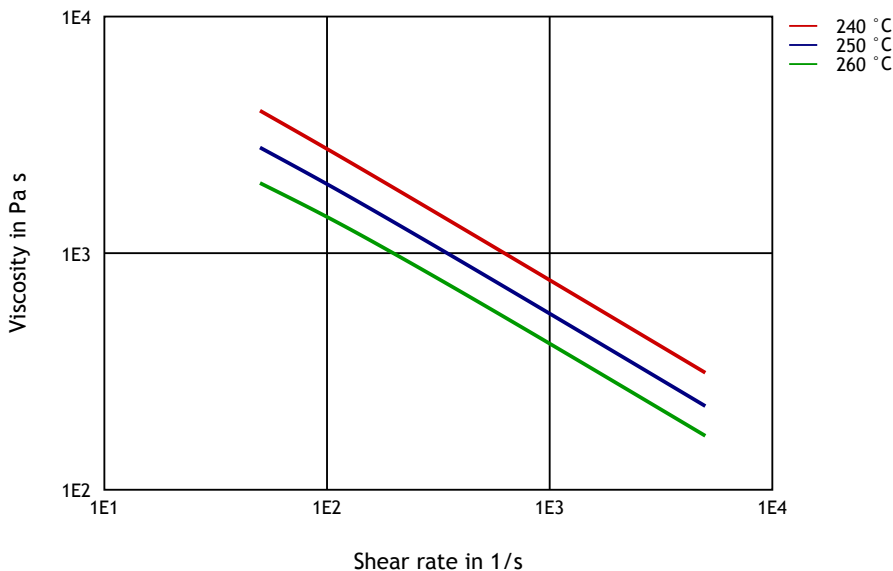
Drying recommended = Yes  
 Drying temperature = 110-130 °C  
 Drying time, dehumidified dryer = 2-4 h  
 Processing moisture content = <0.04 %

##### PROCESSING

Melt temperature range = 240-260 °C

### Diagrams

#### Viscosity-shear rate



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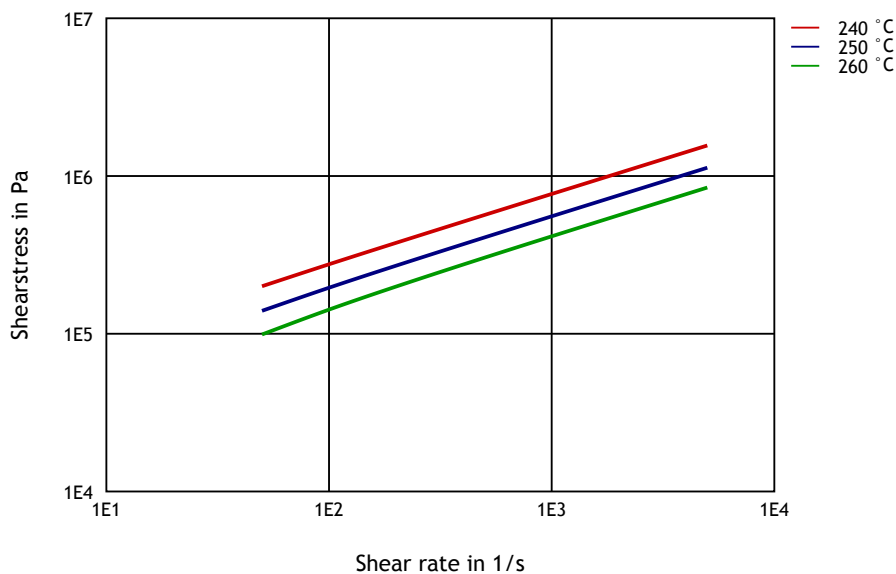
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## THERMOPLASTIC POLYESTER RESIN

Shearstress-shear rate



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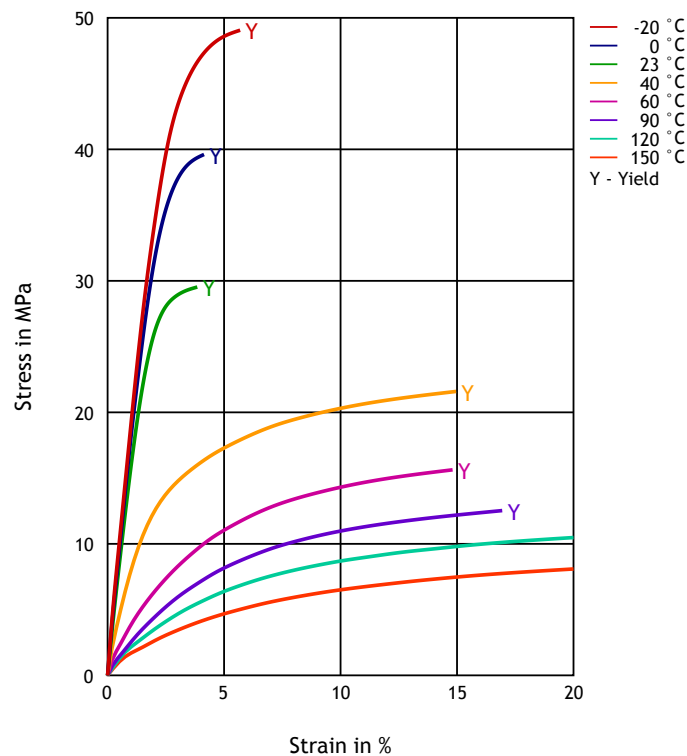
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# DuPont™ Crastin® BM6450XD BK560 (Preliminary Data)

## THERMOPLASTIC POLYESTER RESIN

Stress-strain



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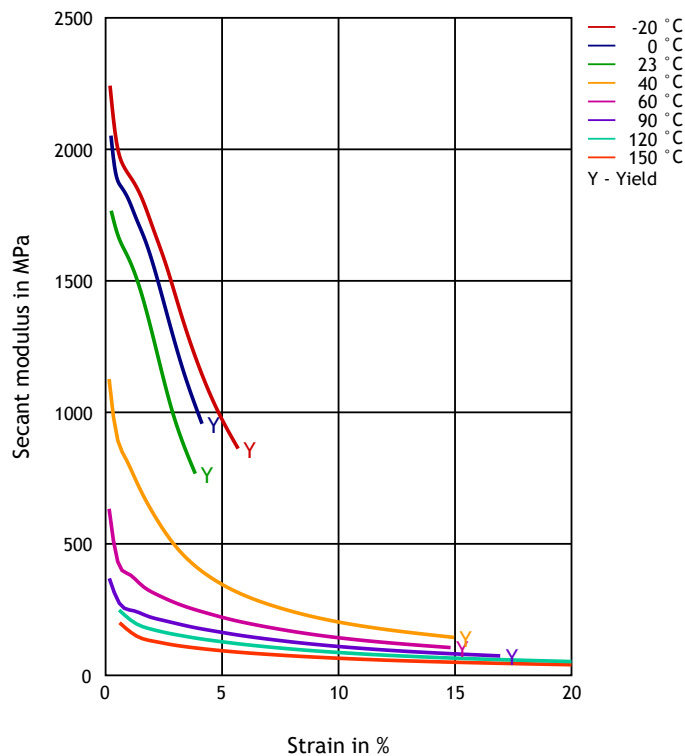
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# DuPont™ Crastin® BM6450XD BK560 (Preliminary Data)

## THERMOPLASTIC POLYESTER RESIN

Secant modulus-strain



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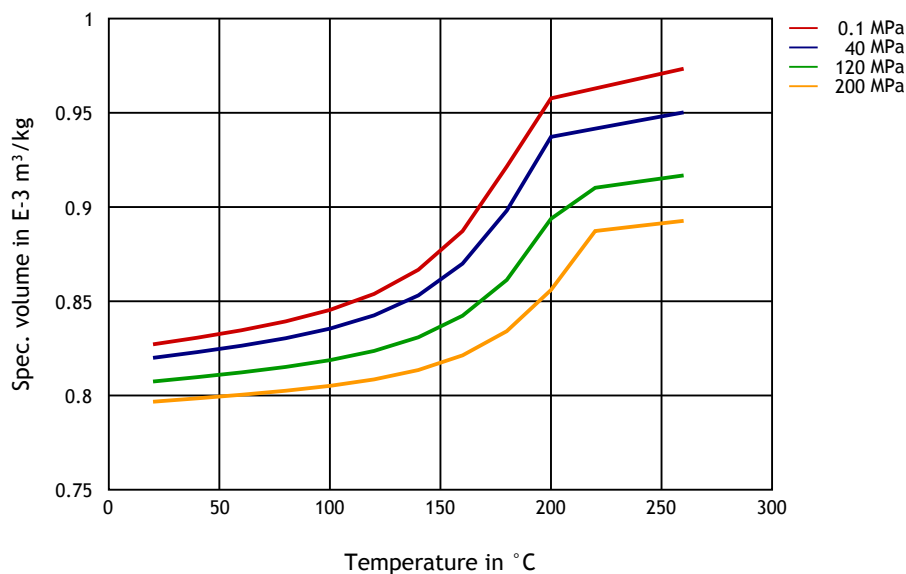
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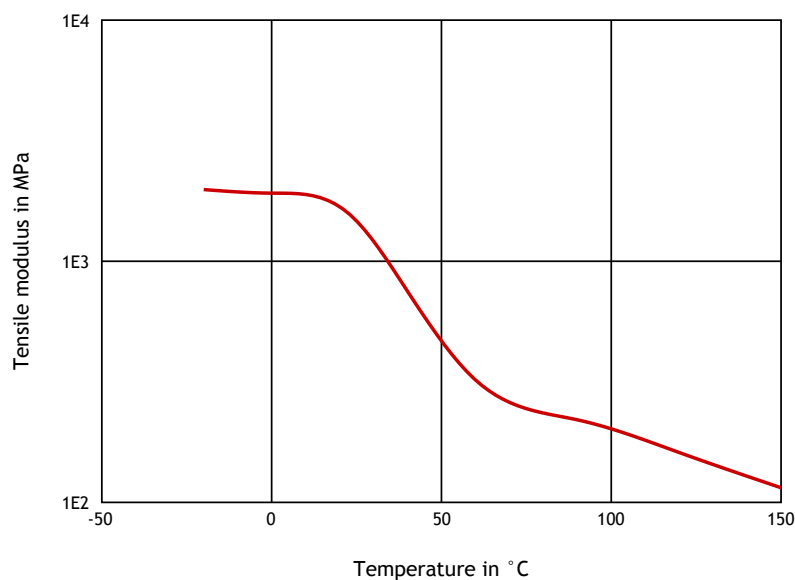
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## THERMOPLASTIC POLYESTER RESIN

### Specific volume-temperature (pvT)



### Tensile modulus-temperature



### Chemical Media Resistance

#### Acids

✓ Acetic Acid (5% by mass) (23°C)

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## THERMOPLASTIC POLYESTER RESIN

- ✓ 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.

The information set forth herein is furnished free of charge and is based on technical data that DuPont believes to be reliable and falls within the normal range of properties. It is intended for use by persons having technical skill, at their own discretion and risk. This data should not be used to establish specification limits nor used alone as the basis of design. Handling precaution information is given with the understanding that those using it will satisfy themselves that their particular conditions of use present no health or safety hazards. Since conditions of product use and disposal are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information. As with any product, evaluation under end-use conditions prior to specification is essential. Nothing herein is to be taken as a license to operate or a recommendation to infringe on patents. Caution: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, discuss with your DuPont customer representative and read Medical Caution H-50103-4.

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