

DuPont™ Crastin® LW9020 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® LW9020 NC010 is a 20% glass fiber reinforced polybutylene terephthalate blend for injection molding. It has improved surface aesthetics, excellent dimensional stability and low warpage characteristics.

General information	Value	Unit	Test Standard
Resin Identification	PBT+ASA-GF20	-	ISO 1043
Part Marking Code	PBT+ASA-GF20	-	ISO 11469
Rheological properties	Value	Unit	Test Standard
Molding shrinkage, parallel	0.3	%	ISO 294-4, 2577
Molding shrinkage, normal	0.7	%	ISO 294-4, 2577
Mechanical properties	Value	Unit	Test Standard
Tensile Modulus	7000	MPa	ISO 527-1/-2
Stress at break	110	MPa	ISO 527-1/-2
Strain at break	2.9	%	ISO 527-1/-2
Flexural Modulus	6300	MPa	ISO 178
Flexural Strength	170	MPa	ISO 178
Tensile creep modulus			ISO 899-1
1h	6500	MPa	
1000h	4800	MPa	
Charpy impact strength			ISO 179/1eU
73°F	60	kJ/m ²	
-22°F	43	kJ/m ²	
Charpy notched impact strength			ISO 179/1eA
73°F	9.5	kJ/m ²	
-22°F	7.5	kJ/m ²	
Izod notched impact strength			ISO 180/1A
73°F	8	kJ/m ²	
-22°F	7	kJ/m ²	
Izod impact strength			ISO 180/1U
73°F	50	kJ/m ²	
-22°F	50	kJ/m ²	
Thermal properties	Value	Unit	Test Standard
Melting temperature, 18°F/min	225	°C	ISO 11357-1/-3
Glass transition temperature, 18°F/min	110	°C	ISO 11357-1/-2
Temp. of deflection under load			ISO 75-1/-2
260 psi	150	°C	
65 psi	210	°C	
Vicat softening temperature, 90°F/h, 11 lbf	145	°C	ISO 306
Coeff. of linear therm. expansion, parallel	30	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	1850	J/(kg K)	-

Revised: 2016-09-06

Page: 1 of 11

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

North America

Tel: +1 302 999-4592

Toll-Free (USA): 800 441-0575

Asia Pacific

Tel: +81 3 5521 8600

Europe/Middle East/Africa

Tel: +41 22 717 51 11



DuPont™ Crastin® LW9020 NC010

THERMOPLASTIC POLYESTER RESIN

RTI, electrical			UL 746B
30mil	130	°C	
60mil	130	°C	
120mil	130	°C	
240mil	130	°C	
RTI, impact			UL 746B
30mil	125	°C	
60mil	125	°C	
120mil	130	°C	
240mil	130	°C	
RTI, strength			UL 746B
30mil	130	°C	
60mil	130	°C	
120mil	130	°C	
240mil	130	°C	
Flammability	Value	Unit	Test Standard
Burning Behav. at 60mil 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	0.75	mm	IEC 60695-11-10
UL recognition	yes	-	UL 94
Oxygen index	19	%	ISO 4589-1/-2
Glow Wire Flammability Index, 120mil	725	°C	IEC 60695-2-1/2
Glow Wire Ignition Temperature, 120mil	700	°C	IEC 60695-2-1/3
FMVSS Class	B	-	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	38	mm/min	ISO 3795 (FMVSS 302)
Electrical properties	Value	Unit	Test Standard
Relative permittivity			IEC 60250
100Hz	3.7	-	
1MHz	3.4	-	
Dissipation factor			IEC 60250
100Hz	20.1	E-4	
1MHz	180	E-4	
Volume resistivity	>1E13	Ohm*m	IEC 60093
Surface resistivity	1E14	Ohm	IEC 60093
Electric strength	35	kV/mm	IEC 60243-1
Comparative tracking index	550	-	IEC 60112
Electric Strength, Short Time			IEC 60243-1
1mm	35	kV/mm	
2mm	20	kV/mm	
Other properties	Value	Unit	Test Standard
Humidity absorption, 80mil	0.26	%	Sim. to ISO 62
Water absorption, 80mil	0.78	%	Sim. to ISO 62
Density	1350	kg/m ³	ISO 1183
Density of melt	1190	kg/m ³	-
VDA Properties	Value	Unit	Test Standard
Emission of organic compounds	100	µgC/g	VDA 277
Odor test	3.5	class	VDA 270
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	250	°C	-
Min. melt temperature	240	°C	-

Revised: 2016-09-06

Page: 2 of 11

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

North America

Tel: +1 302 999-4592

Toll-Free (USA): 800 441-0575

Asia Pacific

Tel: +81 3 5521 8600

Europe/Middle East/Africa

Tel: +41 22 717 51 11



Copyright 2017 DuPont. The DuPont Oval Logo is a trademark or registered trademark of E.I. du Pont de Nemours and Company or its affiliates. All rights reserved.

DuPont™ Crastin® LW9020 NC010

THERMOPLASTIC POLYESTER RESIN

Max. melt temperature	260 °C	-
Mold Temperature Optimum	80 °C	-
Min. mold temperature	30 °C	-
Max. mold 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 Molding		
Delivery form	• Pellets		
Additives	• Release agent		
Regional Availability	• North America • Europe	• Asia Pacific • South and Central America	• Near East/Africa • Global

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

North America

Tel: +1 302 999-4592

Toll-Free (USA): 800 441-0575

Asia Pacific

Tel: +81 3 5521 8600

Europe/Middle East/Africa

Tel: +41 22 717 51 11

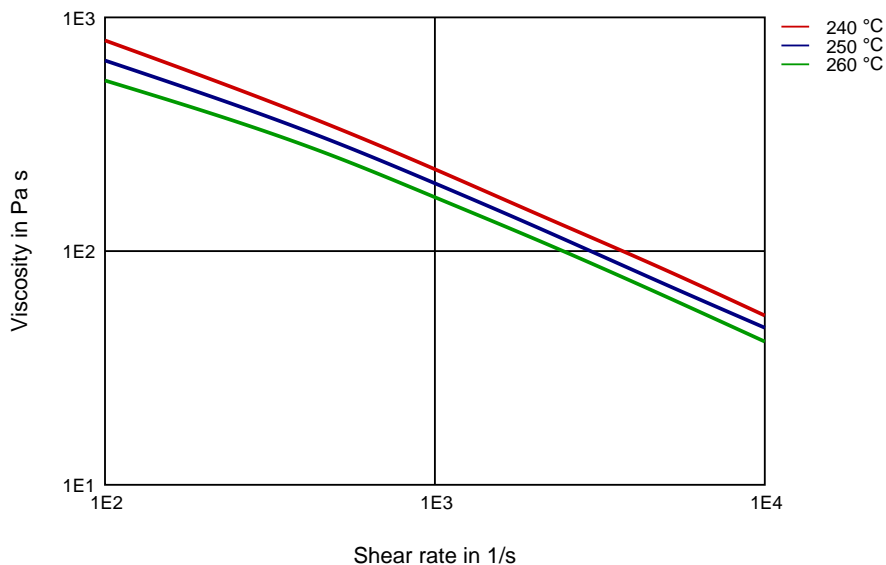


DuPont™ Crastin® LW9020 NC010

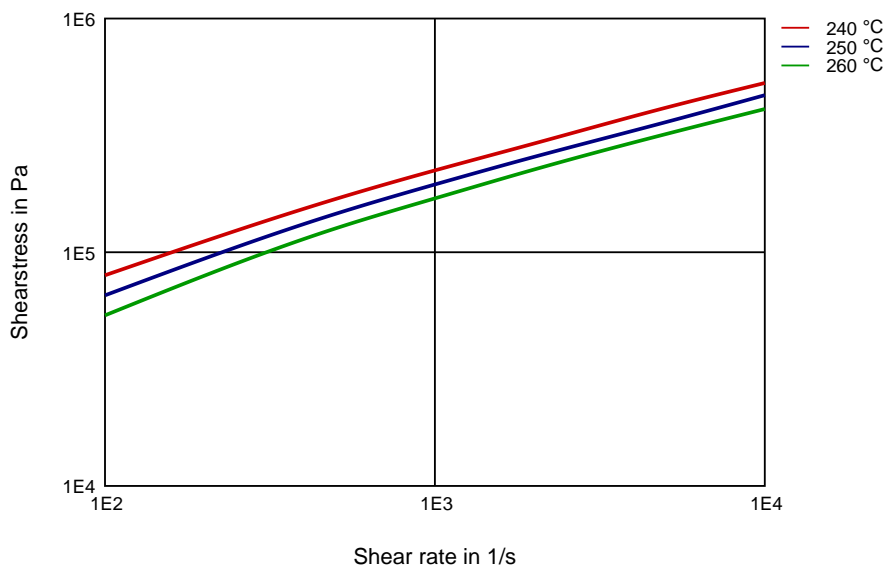
THERMOPLASTIC POLYESTER RESIN

Diagrams

Viscosity-shear rate



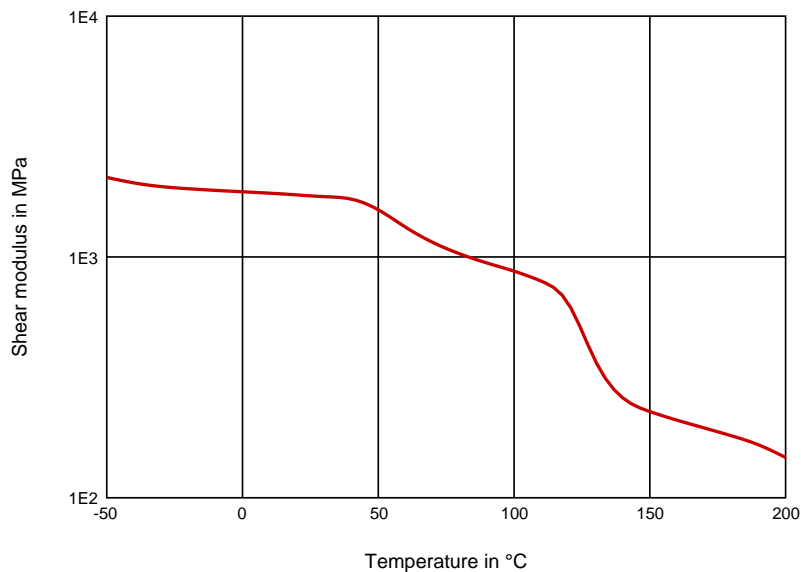
Shearstress-shear rate



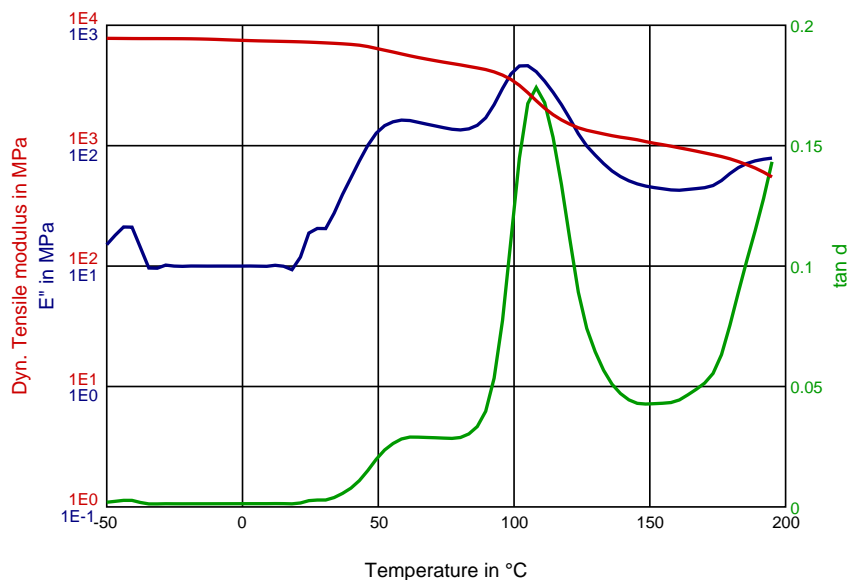
DuPont™ Crastin® LW9020 NC010

THERMOPLASTIC POLYESTER RESIN

Dynamic Shear modulus-temperature



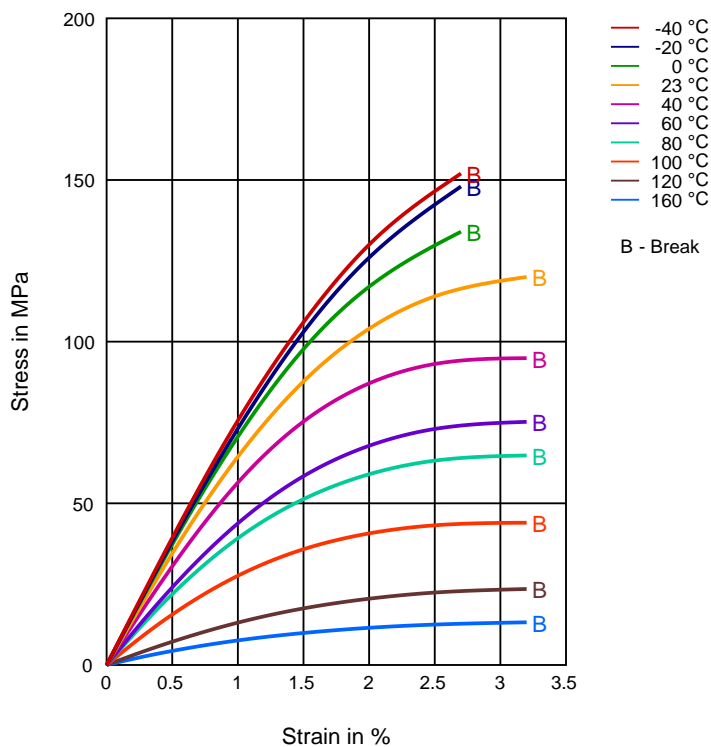
Dynamic Tensile modulus-temperature



DuPont™ Crastin® LW9020 NC010

THERMOPLASTIC POLYESTER RESIN

Stress-strain



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

North America

Tel: +1 302 999-4592

Toll-Free (USA): 800 441-0575

Asia Pacific

Tel: +81 3 5521 8600

Europe/Middle East/Africa

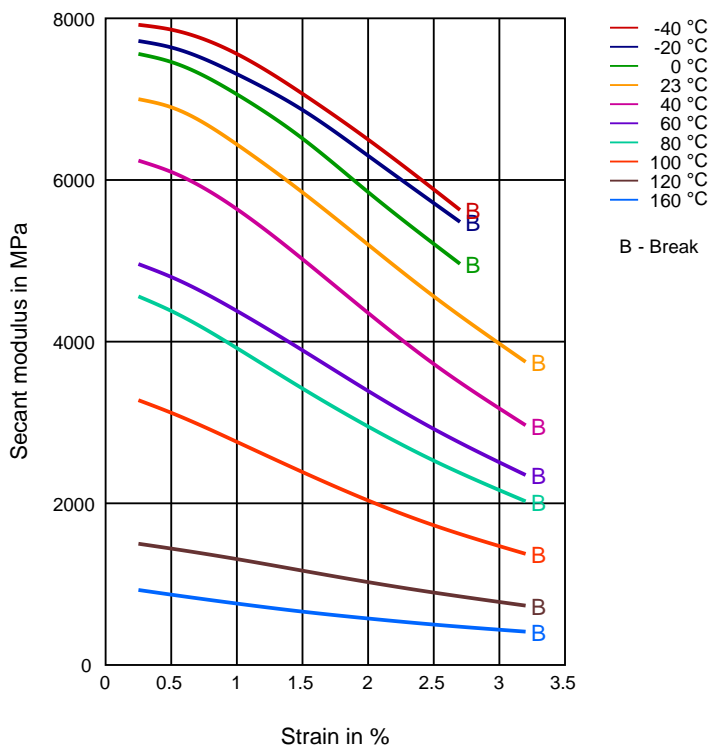
Tel: +41 22 717 51 11



DuPont™ Crastin® LW9020 NC010

THERMOPLASTIC POLYESTER RESIN

Secant modulus-strain



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

North America

Tel: +1 302 999-4592
Toll-Free (USA): 800 441-0575

Asia Pacific

Tel: +81 3 5521 8600

Europe/Middle East/Africa

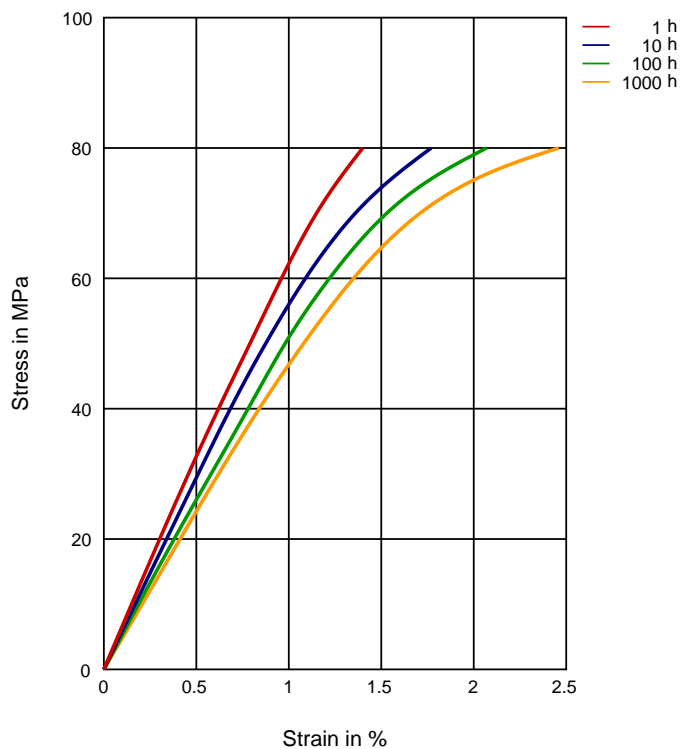
Tel: +41 22 717 51 11



DuPont™ Crastin® LW9020 NC010

THERMOPLASTIC POLYESTER RESIN

Stress-strain (isochronous) 23°C



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

North America

Tel: +1 302 999-4592

Toll-Free (USA): 800 441-0575

Asia Pacific

Tel: +81 3 5521 8600

Europe/Middle East/Africa

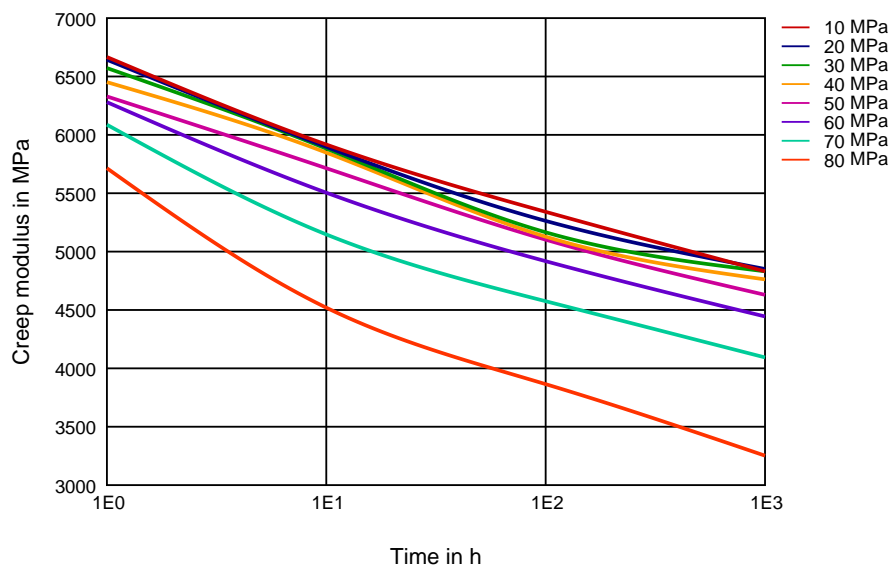
Tel: +41 22 717 51 11



DuPont™ Crastin® LW9020 NC010

THERMOPLASTIC POLYESTER RESIN

Creep modulus-time 23 °C



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

North America

Tel: +1 302 999-4592

Toll-Free (USA): 800 441-0575

Asia Pacific

Tel: +81 3 5521 8600

Europe/Middle East/Africa

Tel: +41 22 717 51 11



DuPont™ Crastin® LW9020 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)

Revised: 2016-09-06

Page: 10 of 11

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

North America

Tel: +1 302 999-4592

Toll-Free (USA): 800 441-0575

Asia Pacific

Tel: +81 3 5521 8600

Europe/Middle East/Africa

Tel: +41 22 717 51 11



Copyright 2017 DuPont. The DuPont Oval Logo is a trademark or registered trademark of E.I. du Pont de Nemours and Company or its affiliates. All rights reserved.

DuPont™ Crastin® LW9020 NC010

THERMOPLASTIC POLYESTER RESIN

- ✓ 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 160 mil (Hytrel® measured at 80 mil), IEC Electrical properties measured at 80 mil, all ASTM properties measured at 120 mil, and test temperatures are 73°F 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-50103-5.

Copyright © 2017 DuPont or its affiliates. All Rights Reserved. The DuPont Oval Logo, DuPont™, The miracles of science™ and all products denoted with ® or ™ are registered trademarks or trademarks of E.I. du Pont de Nemours and Company or its affiliates.

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

North America

Tel: +1 302 999-4592

Toll-Free (USA): 800 441-0575

Asia Pacific

Tel: +81 3 5521 8600

Europe/Middle East/Africa

Tel: +41 22 717 51 11

