

# DuPont™ Crastin® FGS600F40 NC010 (Preliminary Data)

## THERMOPLASTIC POLYESTER RESIN

Product Information

Crastin® FGS600F40 NC010 is an unreinforced lubricated, low viscosity polybutylene terephthalate resin for injection molding. It has been developed for consideration into applications such as parts for the food industry.

**FOOD CONTACT**

This product is manufactured according to Good Manufacturing Practice (GMP) principles and generally accepted in food contact applications in Europe and the USA when meeting applicable use conditions. For details, individual compliance statements are available from your DuPont representative.

General information	Value	Unit	Test Standard
Resin Identification	PBT	-	-
Part Marking Code	>PBT<	-	ISO 11469
Rheological properties	Value	Unit	Test Standard
Melt mass-flow rate	32.9	g/10min	ISO 1133
Melt mass-flow rate, Temperature	250	°C	-
Melt mass-flow rate, Load	2.16	kg	-
Viscosity number	120	cm <sup>3</sup> /g	ISO 307, 1157, 1628
Moulding shrinkage, parallel	1.9	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.8	%	ISO 294-4, 2577
Mechanical properties	Value	Unit	Test Standard
Tensile Modulus	2600	MPa	ISO 527-1/-2
Yield stress	58	MPa	ISO 527-1/-2
Yield strain	6	%	ISO 527-1/-2
Nominal strain at break	30	%	ISO 527-1/-2
Strain at Break, 23°C, 50mm/min	>50	%	ISO 527-1/-2
Flexural Modulus	2400	MPa	ISO 178
Flexural Strength	85	MPa	ISO 178
Tensile creep modulus			ISO 899-1
1h	2600	MPa	
1000h	1800	MPa	
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	4	kJ/m <sup>2</sup>	
-30°C	4	kJ/m <sup>2</sup>	
Izod notched impact strength, 23°C	4	kJ/m <sup>2</sup>	ISO 180/1A
Thermal properties	Value	Unit	Test Standard
Melting temperature, 10°C/min	225	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	55	°C	ISO 11357-1/-2
Temp. of deflection under load			ISO 75-1/-2
1.8 MPa	50	°C	
0.45 MPa	115	°C	
0.45 MPa, annealed	180	°C	
1.8 MPa, annealed	60	°C	
Vicat softening temperature, 50°C/h, 50N	175	°C	ISO 306
Coeff. of linear therm. expansion, parallel	110	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	120	E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.21	W/(m K)	-
Spec. heat capacity of melt	2110	J/(kg K)	-

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® FGS600F40 NC010 (Preliminary Data)

## THERMOPLASTIC POLYESTER RESIN

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
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
Electrical properties	Value	Unit	Test Standard
Relative permittivity, 1MHz	3.2	-	IEC 60250
Dissipation factor			IEC 60250
100Hz	20	E-4	
1MHz	200	E-4	
Volume resistivity	>1E13	Ohm*m	IEC 60093
Surface resistivity	1E12	Ohm	IEC 60093
Electric strength	26	kV/mm	IEC 60243-1
Comparative tracking index	600	-	IEC 60112
Other properties	Value	Unit	Test Standard
Humidity absorption, 2mm	0.2	%	Sim. to ISO 62
Water absorption, 2mm	0.4	%	Sim. to ISO 62
Density	1310	kg/m <sup>3</sup>	ISO 1183
Density of melt	1110	kg/m <sup>3</sup>	-

Characteristics	Value	Unit	Test Standard
Processing			
Delivery form			
Regional Availability			

- Injection Moulding
- Pellets
- North America
- Europe
- Asia Pacific
- South and Central America
- Near East/Africa
- Global

### 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

### 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)

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® FGS600F40 NC010 (Preliminary Data)

## THERMOPLASTIC POLYESTER RESIN

**X** Chromic Acid solution (40% by mass) (23°C)

### Bases

- X** 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)
- X** SAE 10W40 multigrade motor oil (130°C)
- X** SAE 80/90 hypoid-gear oil (130°C)
- ✓ Insulating Oil (23°C)

### Standard Fuels

- X** ISO 1817 Liquid 1 (60°C)
- X** ISO 1817 Liquid 2 (60°C)
- X** ISO 1817 Liquid 3 (60°C)
- X** 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)
- X** 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)

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® FGS600F40 NC010 (Preliminary Data)

## THERMOPLASTIC POLYESTER RESIN

### 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.

Copyright © 2014 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.

**The above data are preliminary and are subject to change as additional data are developed on subsequent lots.**

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

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® FGS600F40 NC010 (Preliminary Data)

## THERMOPLASTIC POLYESTER RESIN

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.

Copyright © 2014 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

