

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® SK605 BK851 is a 30% glass fiber reinforced, lubricated polybutylene terephthalate resin for injection moulding.

Product information

Resin Identification	PBT-GF30	ISO 1043
Part Marking Code	>PBT-GF30<	ISO 11469

Rheological properties

0 1 1			
Melt volume-flow rate	7	cm ³ /10min	ISO 1133
Temperature	250	°C	
Load	2.16	kg	
Melt mass-flow rate	10	g/10min	ISO 1133
Melt mass-flow rate, Temperature	250	°C	
Melt mass-flow rate, Load	2.16	kg	
Moulding shrinkage, parallel	0.3	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.1	%	ISO 294-4, 2577
Postmoulding shrinkage, normal, 48h at 80°C	0.2	%	ISO 294-4
Postmoulding shrinkage, parallel, 48h at 80°C	0.1	%	ISO 294-4

Typical mechanical properties

Tensile modulus	10000	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	140	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.7	%	ISO 527-1/-2
Flexural modulus	9000	MPa	ISO 178
Flexural strength	200	MPa	ISO 178
Charpy impact strength, 23°C	65	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	10	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	9	kJ/m²	ISO 180/1A
Izod impact strength, 23°C	60	kJ/m²	ISO 180/1U
Izod impact strength, -30°C	55	kJ/m²	ISO 180/1U
Izod impact strength, -40°C	55	kJ/m²	ISO 180/1U
Ball indentation hardness, H 961/30	205	MPa	ISO 2039-1
Poisson's ratio	0.34		

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The	rma	l n	roi	ner	ties
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Melting temperature, 10°C/min Glass transition temperature, 10°C/min Temperature of deflection under load, 1.8 MPa Temperature of deflection under load, 0.45 MPa Ball pressure test Coefficient of linear thermal expansion	205 220 210	°C °C	ISO 11357-1/-3 ISO 11357-1/-3 ISO 75-1/-2 ISO 75-1/-2 IEC 60695-10-2 ISO 11359-1/-2
(CLTE), parallel Coefficient of linear thermal expansion (CLTE),	90	E-6/K	ISO 11359-1/-2
normal Thermal conductivity of melt Specific heat capacity of melt		W/(m K) J/(kg K)	ISO 22007-2 ISO 22007-4
RTI, electrical, 0.75mm RTI, electrical, 1.5mm	130 130	°C	UL 746B UL 746B
RTI, electrical, 3.0mm RTI, electrical, 6mm	130 130	°C	UL 746B UL 746B
RTI, impact, 0.75mm RTI, impact, 1.5mm	130 130	°C	UL 746B UL 746B
RTI, impact, 3.0mm RTI, impact, 6mm RTI, strength, 0.75mm	130 130 130	°C	UL 746B UL 746B UL 746B
RTI, strength, 1.5mm RTI, strength, 3.0mm	130 130	°C	UL 746B UL 746B
RTI, strength, 6mm	130	°C	UL 746B

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	НВ	class	IEC 60695-11-10
Thickness tested	0.75	mm	IEC 60695-11-10
UL recognition	yes		UL 94
Oxygen index	20	%	ISO 4589-1/-2
Glow Wire Flammability Index, 0.75mm	725	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5mm	725	°C	IEC 60695-2-12
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, 1.5mm	750	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3.0mm	775	°C	IEC 60695-2-13
FMVSS Class	В		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	54	mm/min	ISO 3795 (FMVSS 302)

Electrical properties

Relative permittivity, 100Hz	3.9 ^[DS]	IEC 62631-2-1
Relative permittivity, 1MHz	3.8 ^[DS]	IEC 62631-2-1
Dissipation factor, 100Hz	7.5 ^[DS] E-4	:== === :
Dissipation factor, 1MHz	180 ^[DS] E-4	IEC 62631-2-1
Electric strength	34 kV	mm IEC 60243-1

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Comparative tracking index 225 IEC 60112

[DS]: Derived from similar grade

Physical/Other properties

Humidity absorption, 2mm 0.15 % Sim. to ISO 62 Water absorption, 2mm 0.35 % Sim. to ISO 62 Density 1530 kg/m 3 ISO 1183

VDA properties

Odour 3 class VDA 270 Fogging, F-value (refraction) 99 % ISO 6452

Injection

Drying Recommended yes 120 °C **Drying Temperature** Drying Time, Dehumidified Dryer 2-4 h **Processing Moisture Content** ≤0.04 % 250 °C Melt Temperature Optimum Min. melt temperature 240 °C Max. melt temperature 260 °C Mold Temperature Optimum 80 °C 60 °C Min. mould temperature Max. mould temperature 130 °C Hold pressure range ≥60 MPa Hold pressure time 3 s/mm Back pressure As low as MPa

possible Ejection temperature possible 170 °C

Characteristics

Processing Injection Moulding, Extrusion, Other Extrusion

Automotive

OEM STANDARD ADDITIONAL INFORMATION

 BMW
 GS93016-PBT-GF30

 Bosch
 N28 BN07-GF023

 Ford
 WSS-M4D725-B1

General Motors GMW16733P-PBT-GF30 Black

Hyundai MS941-03 Type F-5

Mercedes-Benz DBL5403.51 PBT-GF30

Mercedes-Benz DBL5416.90 PBT-GF30

Mercedes-Benz DBL5419.90 PBT-GF30

Mercedes-Benz DBL5420.00 PBT-GF30

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NIO NIO-SM.51.010

Renault-Nissan FEM, No Spec, Special Part Approval, See

Your CE Account Manager.

Renault-Nissan FRM, No Spec, Special Part Approval, See

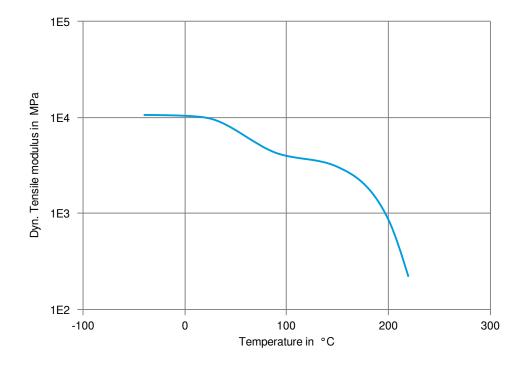
Your CE Account Manager.

Stellantis MS.90181 / PBT.GF30.8000T.7C.HS CPN2512, CPN5350

Stellantis - ChryslerMS.50103 / CPN-2512BlackStellantis - ChryslerMS.50103 / CPN-4675Black

VW Group VW 50136-PBT-6-A

Dynamic Tensile modulus-temperature (measured on Crastin® SK605 NC010)

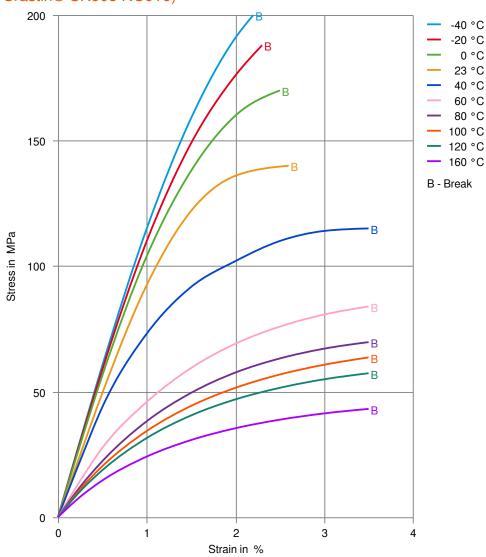


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Stress-strain (measured on Crastin® SK605 NC010)

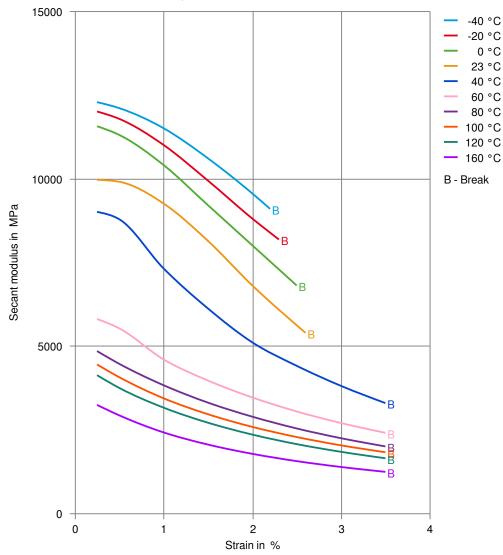


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Secant modulus-strain (measured on Crastin® SK605 NC010)



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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
- X Hydrochloric Acid (36% by mass), 23°C
- X Nitric Acid (40% by mass), 23°C
- X Sulfuric Acid (38% by mass), 23°C
- X Sulfuric Acid (5% by mass), 23°C
- 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
- ★ SAE 10W40 multigrade motor oil, 130°C
- X SAE 80/90 hypoid-gear oil, 130°C
- ✓ Insulating Oil, 23°C
- X Motor oil OS206 304 Ref.Eng.Oil, ISP, 135°C
- X Automatic hypoid-gear oil Shell Donax TX, 135°C
- X Hydraulic oil Pentosin CHF 202, 125°C

Standard Fuels

- X ISO 1817 Liquid 1 E5, 60°C
- X ISO 1817 Liquid 2 M15E4, 60°C
- X ISO 1817 Liquid 3 M3E7, 60°C
- X 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

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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
- X 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
- X 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).

x 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).

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NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colourants or other additives may processing conditions and environmental exposure. Other than those products expressly identified as medical grade (including by MT® product designation or otherwise), Celanese's products are not intended for use in medical or dental implants. Regardless of any such product designation, any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use. To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication should not be construed as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication. Moreover, there is a need to reduce human exposure to many materials to the lowest practical limits in view of possible adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. We recommend that persons intending to rely on any recommendation or to use any equipment, processing technique or material mentioned in this publication should satisfy themselves that they can meet all applicable safety and health standards. We strongly recommend that users

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