DuPont™ Sorona® 3030G NC010

RENEWABLY SOURCED™ THERMOPLASTIC POLYMER

Product Information

DuPont™ Sorona® EP thermoplastic polymers contain between 20% and 37% renewably sourced material (by weight) derived from corn. The new material exhibits performance and molding characteristics similar to high-performance PBT (polybutylene terephthalate).
In addition to good strength and stiffness, early tests indicate improved surface appearance, lower warpage, and good dimensional stability, making it very attractive in a range of uses for automotive parts and components, electrical and electronics systems as well as industrial and consumer products.

Sorona® EP thermoplastic polymer starts with the same basic polymer chemistry as Sorona® polymer used for fibers but through proprietary formulation technology, further enhancements are added to create high-performance resins suitable for engineering plastics applications.

Sorona® 3030G NC010 is a 30% glass reinforced PTT resin containing 25% renewably sourced ingredients by weight (37% based on polymer only) with good strength, stiffness and low warpage and superior surface appearance in ambient temperature conditions.

General information	Value	Unit	Test Standard
Resin Identification	PTT-GF30	-	ISO 1043
Part Marking Code	>PTT-GF30<	-	ISO 11469
Rheological properties	**Value**	**Unit**	**Test Standard**
Moulding shrinkage, parallel	0.2	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.7	%	ISO 294-4, 2577
Mechanical properties	**Value**	**Unit**	**Test Standard**
Tensile Modulus	11000	MPa	ISO 527-1/-2
Stress at break	165	MPa	ISO 527-1/-2
Strain at break	2.5	%	ISO 527-1/-2
Flexural Modulus	9600	MPa	ISO 178
Flexural Strength	245	MPa	ISO 178
Charpy impact strength			ISO 179/1eU
23°C	50	kJ/m²	
-30°C	45	kJ/m²	
Charpy notched impact strength			ISO 179/1eA
23°C	9	kJ/m²	
-30°C	9	kJ/m²	
Thermal properties	**Value**	**Unit**	**Test Standard**
Melting temperature, 10°C/min	227	°C	ISO 11357-1/-3
Temp. of deflection under load			ISO 75-1/-2
1.8 MPa	210	°C	
0.45 MPa	226	°C	
Coeff. of linear therm. expansion, parallel	7	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion			ISO 11359-1/-2
normal	83	E-6/K	
Normal, -40-23°C	67	E-6/K	
Normal, 55-160°C	120	E-6/K	
Parallel, -40-23°C	25	E-6/K	
Parallel, 55-160°C	16	E-6/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	0.75	mm	IEC 60695-11-10
Oxygen index	20	%	ISO 4589-1/-2
Glow Wire Flammability Index			IEC 60695-2-1/2
0.75mm	700	°C	
1.5mm	650	°C	
3mm	775	°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

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Glow Wire Ignition Temperature			IEC 60695-2-1/3
0.75mm	725	°C	
1.5mm	675	°C	
3mm	800	°C	
Flammability, 3.0mm	HB	-	IEC 60695-11-10
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**
Relative permittivity			IEC 60250
100Hz	4.2	-	
1MHz	4	-	
Dissipation factor			IEC 60250
100Hz	12	E-4	
1MHz	155	E-4	
Volume resistivity	>1E13	Ohm*m	IEC 60093
Surface resistivity	8E13	Ohm	IEC 60093
Electric strength	38	kV/mm	IEC 60243-1
Comparative tracking index	350	-	IEC 60112
Electric Strength, Short Time, 2mm	29	kV/mm	IEC 60243-1
Other properties	**Value**	**Unit**	**Test Standard**
Density	1560	kg/m³	ISO 1183
Density of melt	1350	kg/m³	-
Water Absorption, Immersion 24h	0.08	%	Sim. to ISO 62
Injection	**Value**	**Unit**	**Test Standard**
Drying Recommended	yes	-	-
Drying Temperature	120	°C	-
Drying Time, Dehumidified Dryer	2 - 4	h	-
Processing Moisture Content	≤0.02	%	-
Melt Temperature Optimum	260	°C	-
Min. melt temperature	250	°C	-
Max. melt temperature	270	°C	-
Mold Temperature Optimum	100	°C	-
Min. mould temperature	80	°C	-
Max. mould temperature	110	°C	-
Back pressure	As low as possible		-
Ejection temperature	175	°C	-

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

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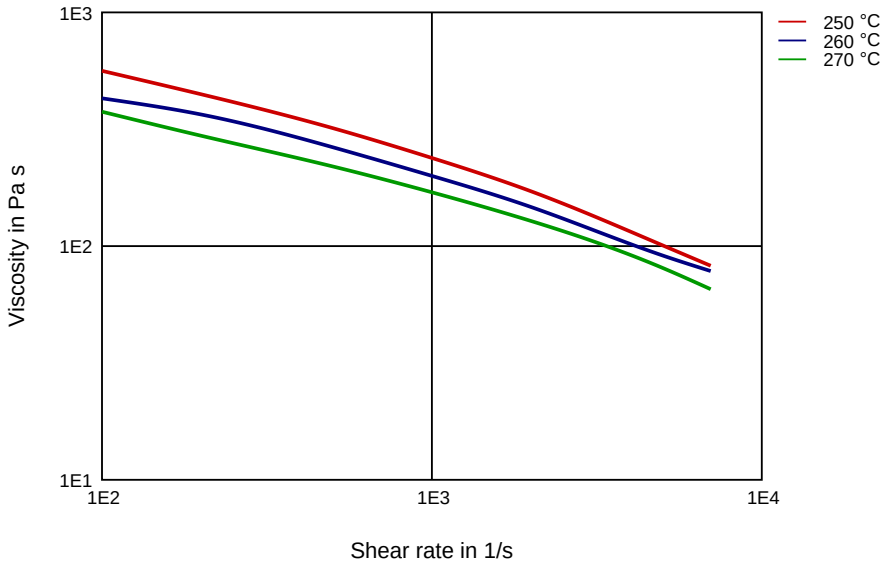
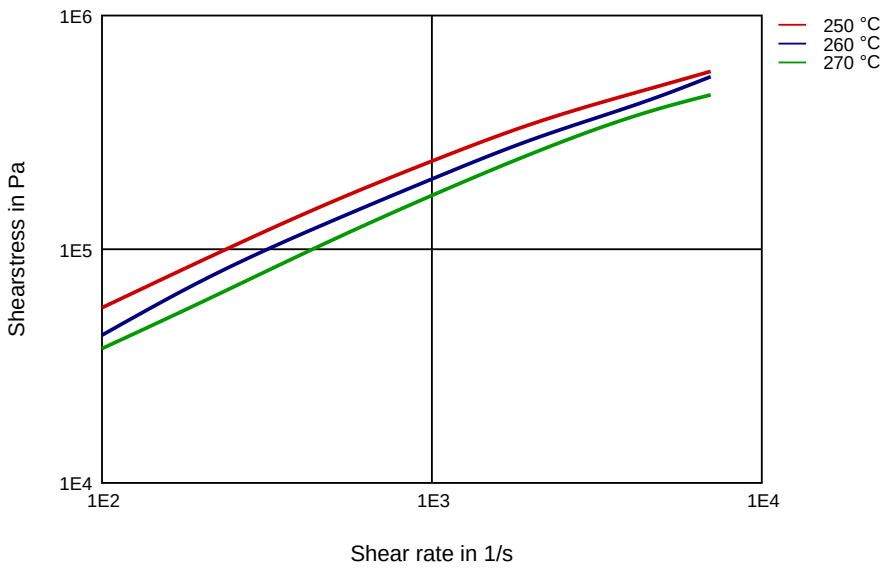
Diagrams

Viscosity-shear rate



Shearstress-shear rate



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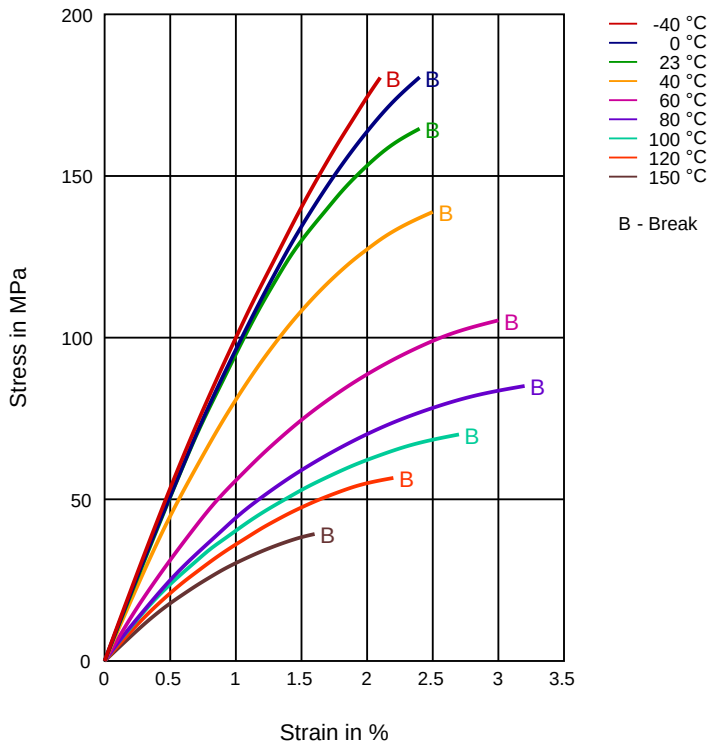
Stress-strain



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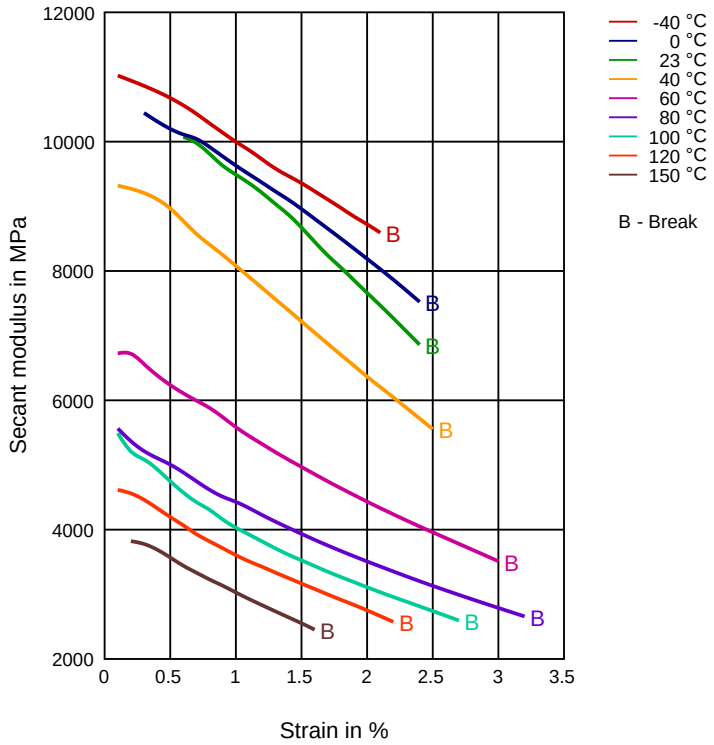
Secant modulus-strain



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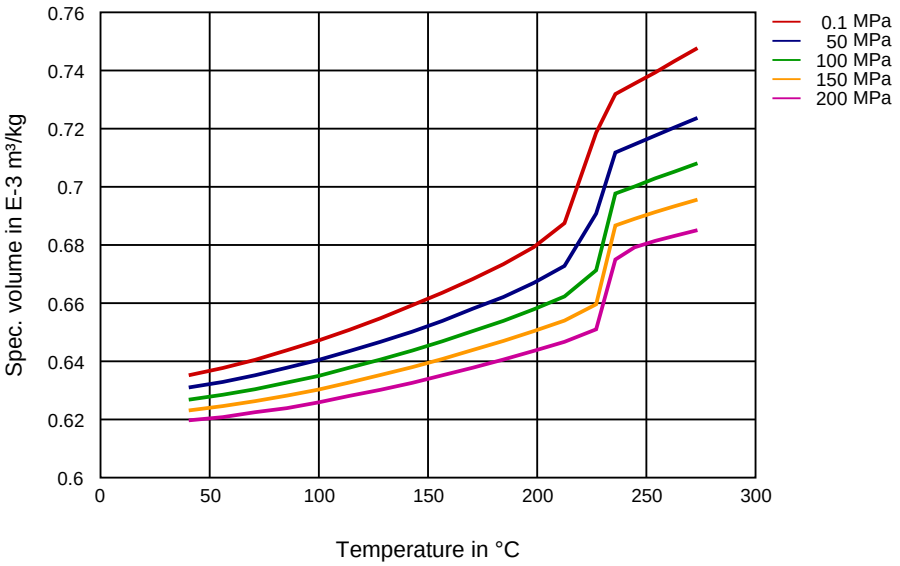
Specific volume-temperature (pvT)



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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)
- ✗ Motor oil OS206 304 Ref.Eng.Oil, ISP (135°C)
- ✗ Automatic hypoid-gear oil Shell Donax TX (135°C)
- ✗ Hydraulic oil Pentosin CHF 202 (125°C)

Standard Fuels

- ✗ ISO 1817 Liquid 1 - E5 (60°C)
- ✗ ISO 1817 Liquid 2 - M15E4 (60°C)
- ✗ ISO 1817 Liquid 3 - M3E7 (60°C)

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✗	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)
✓	Diesel EN 590 (100°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)
✗	Coolant Glysantin G48, 1:1 in water (125°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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