

DuPont™ Minlon® 73M30 NC010

MINERAL REINFORCED NYLON RESIN

Product Information

Common features of Minlon® nylon resin include mechanical and physical properties such as high mechanical strength, excellent balance of stiffness /toughness, good high temperature performance, good chemical resistance, paintability, dimensional stability and low warpage. Grades with improved electrical and flammability properties are available within the Zytel® nylon resin product line. In addition, Minlon® nylon resin is available in different modified and reinforced grades to create a wide range of products with tailored properties for specific processes and end-uses.

The good melt stability of Minlon® nylon 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 (-31kJ/g of base polymer) in appropriately equipped installations. For disposal, local regulations have to be observed.

Minlon® nylon resin typically is used in demanding applications in the automotive, electrical, electronic, domestic appliances and construction industries.

Minlon® 73M30 NC010 is a 30% mineral reinforced, heat stabilized polyamide 6 resin for injection molding. It has isotropic properties and low warpage.

General information	Value	Unit	Test Standard
Resin Identification	PA6-MD30	-	ISO 1043
Part Marking Code	PA6-MD30	-	ISO 11469
Rheological properties	dry / cond	Unit	Test Standard
Molding shrinkage, parallel	0.9 / -	%	ISO 294-4, 2577
Molding shrinkage, normal	0.9 / -	%	ISO 294-4, 2577
Mechanical properties	dry / cond	Unit	Test Standard
Tensile Modulus	696182 / 246565	psi	ISO 527-1/-2
Stress at break	11900 / 7980	psi	ISO 527-1/-2
Strain at break	15 / 40	%	ISO 527-1/-2
Flexural Modulus	696000 / 261000	psi	ISO 178
Tensile creep modulus			ISO 899-1
1h	* / 171000	psi	
1000h	* / 107000	psi	
Charpy impact strength			ISO 179/1eU
73°F	52.3 / N	ftlb/in ²	
-22°F	40.4 / 40.4	ftlb/in ²	
Charpy notched impact strength			ISO 179/1eA
73°F	2.62 / 5.23	ftlb/in ²	
-22°F	1.66 / 1.66	ftlb/in ²	
Izod notched impact strength			ISO 180/1A
73°F	2.62 / 4.28	ftlb/in ²	
-22°F	1.9 / -	ftlb/in ²	
Thermal properties	dry / cond	Unit	Test Standard
Melting temperature, 18°F/min	430 / *	°F	ISO 11357-1/-3
Temp. of deflection under load			ISO 75-1/-2
260 psi	176 / *	°F	
65 psi	383 / *	°F	
Vicat softening temperature, 90°F/h, 11 lbf	410 / *	°F	ISO 306
Coeff. of linear therm. expansion, parallel	3.5E-5 / *	in/in/°F	ISO 11359-1/-2
Coeff. of linear therm. expansion			ISO 11359-1/-2
normal	3.61E-5 / *	in/in/°F	
Normal, -40-23°C	3.17E-5 / *	in/in/°F	
Normal, 55-160°C	6.11E-5 / *	in/in/°F	
Parallel, -40-23°C	3.11E-5 / *	in/in/°F	
Parallel, 55-160°C	4.94E-5 / *	in/in/°F	
RTI, electrical, 30mil	149 / *	°F	UL 746B
RTI, impact, 30mil	149	°F	UL 746B
RTI, strength, 30mil	149	°F	UL 746B

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Flammability			
	dry / cond	Unit	Test Standard
Burning Behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	0.0335 / *	in	IEC 60695-11-10
UL recognition	yes / *	-	UL 94
FMVSS Class	SE	-	ISO 3795 (FMVSS 302)
Other properties			
	dry / cond	Unit	Test Standard
Humidity absorption, 80mil	2.1 / *	%	Sim. to ISO 62
Water absorption, 80mil	6.3 / *	%	Sim. to ISO 62
Density	1.35 / -	g/cm ³	ISO 1183
Injection			
	dry / cond	Unit	Test Standard
Drying Recommended	yes	-	-
Drying Temperature	176	°F	-
Drying Time, Dehumidified Dryer	2 - 4	h	-
Processing Moisture Content	≤0.2	%	-
Melt Temperature Optimum	518	°F	-
Min. melt temperature	500	°F	-
Max. melt temperature	536	°F	-
Max. screw tangential speed	0.2 / *	m/s	-
Mold Temperature Optimum	212	°F	-
Min. mold temperature	158	°F	-
Max. mold temperature	248	°F	-
Hold pressure range	7250 - 14500	psi	-
Hold pressure time	0.0762	s/mil	-
Characteristics			
Processing	• Injection Molding		
Delivery form	• Pellets		
Additives	• Release agent		
Special characteristics	• Platable	• Heat stabilized or stable to heat	
Regional Availability	• North America • Europe	• Asia Pacific • South and Central America	• Near East/Africa • Global

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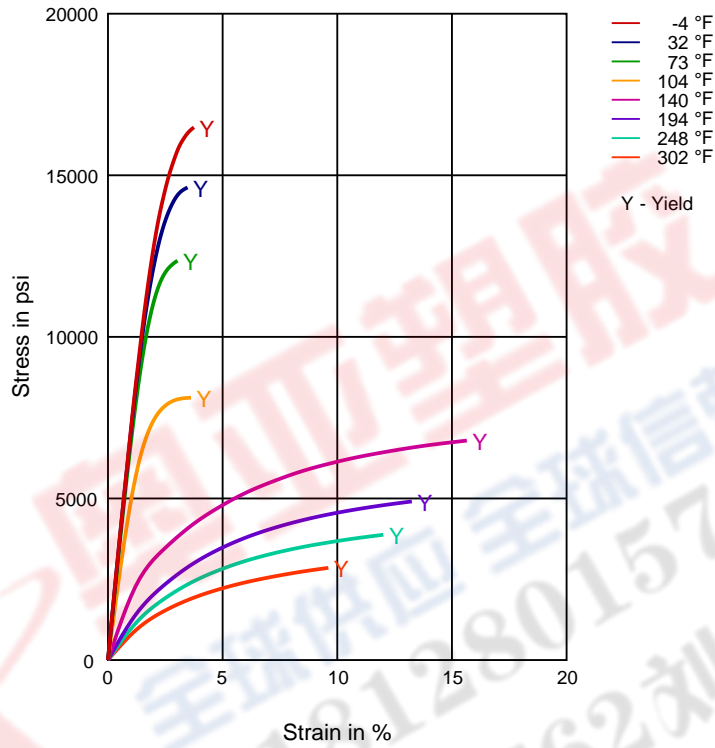
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MINERAL REINFORCED NYLON RESIN

Diagrams

Stress-strain (dry)



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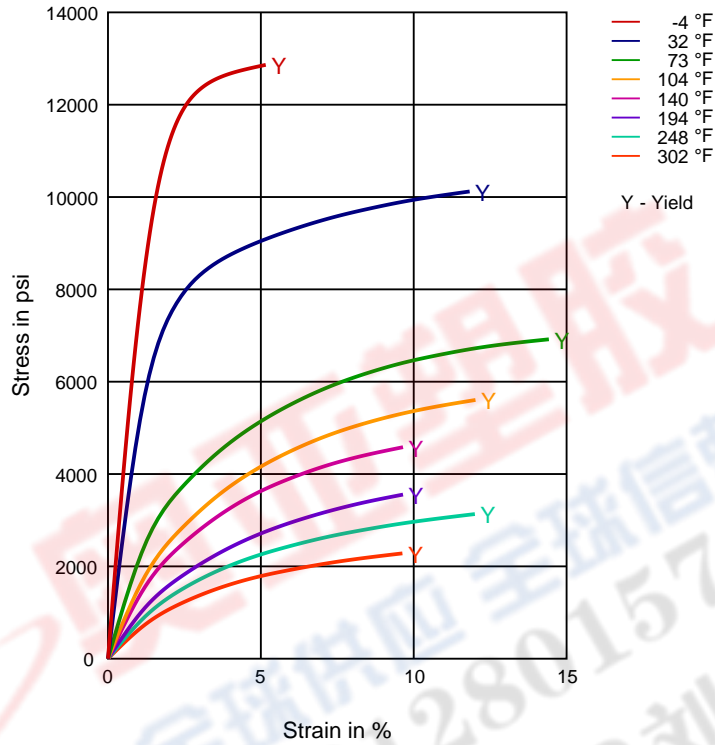
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MINERAL REINFORCED NYLON RESIN

Stress-strain (cond.)



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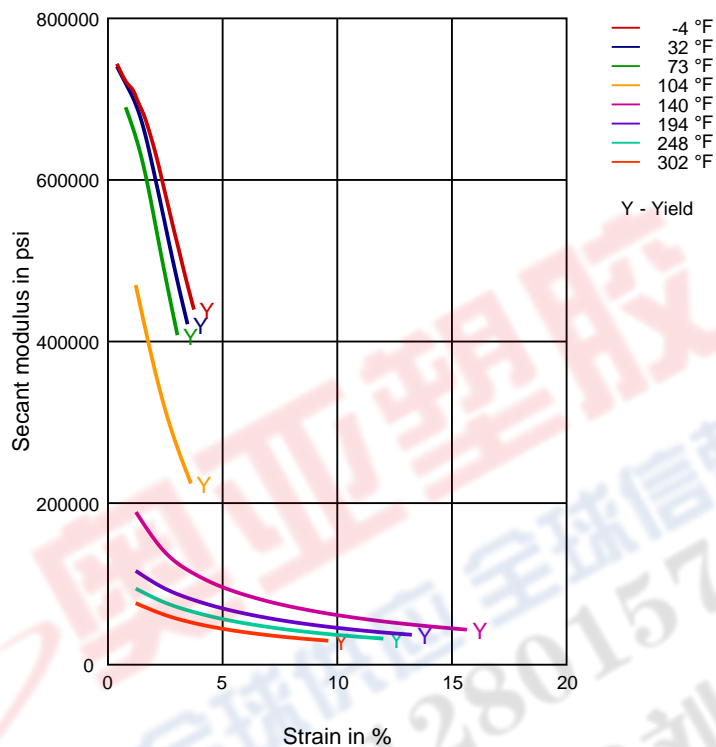
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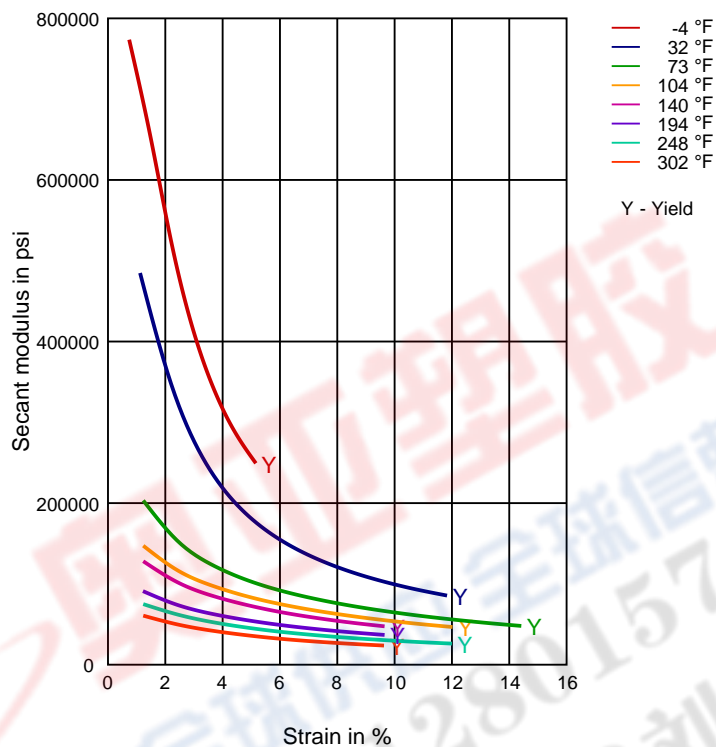
Secant modulus-strain (dry)



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MINERAL REINFORCED NYLON RESIN

Secant modulus-strain (cond.)



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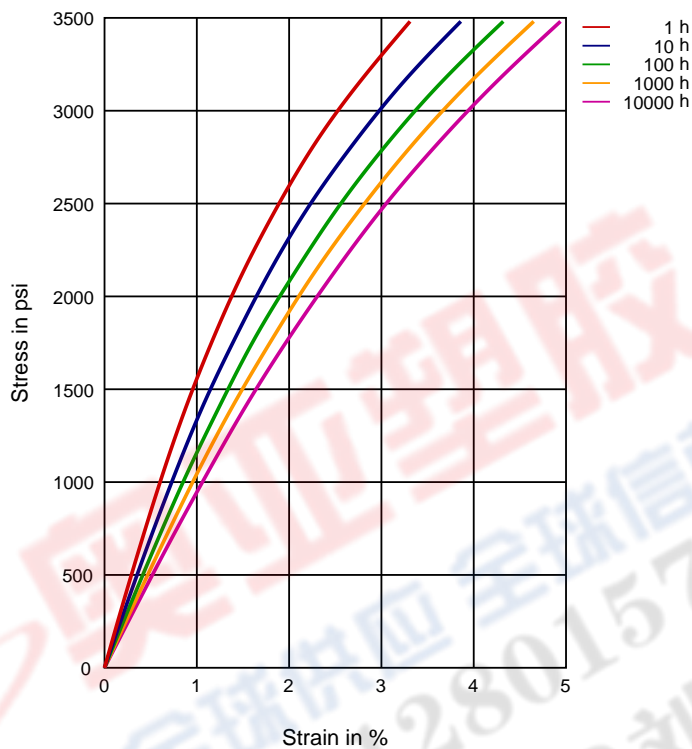


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MINERAL REINFORCED NYLON RESIN

Stress-strain (isochronous) 73°F(cond.)



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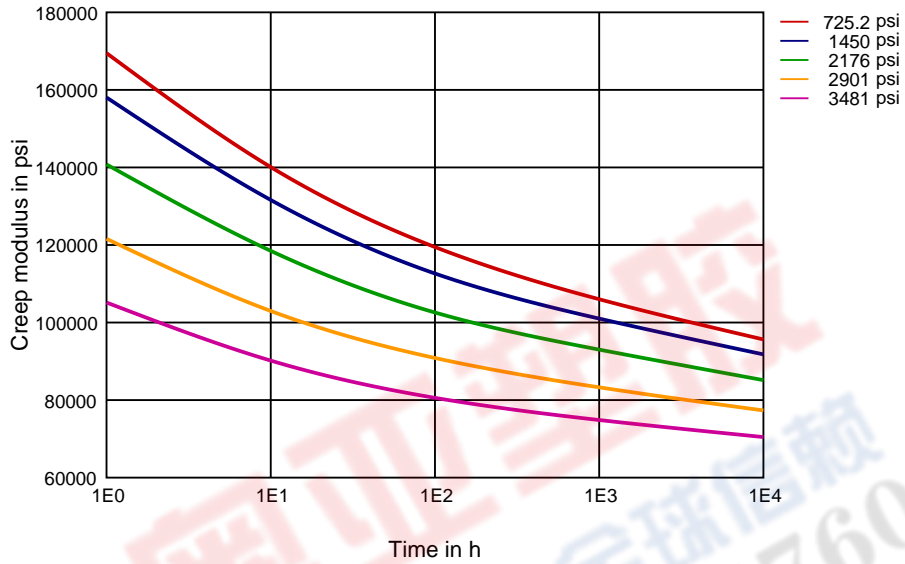


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MINERAL REINFORCED NYLON RESIN

Creep modulus-time 73 °F (cond.)



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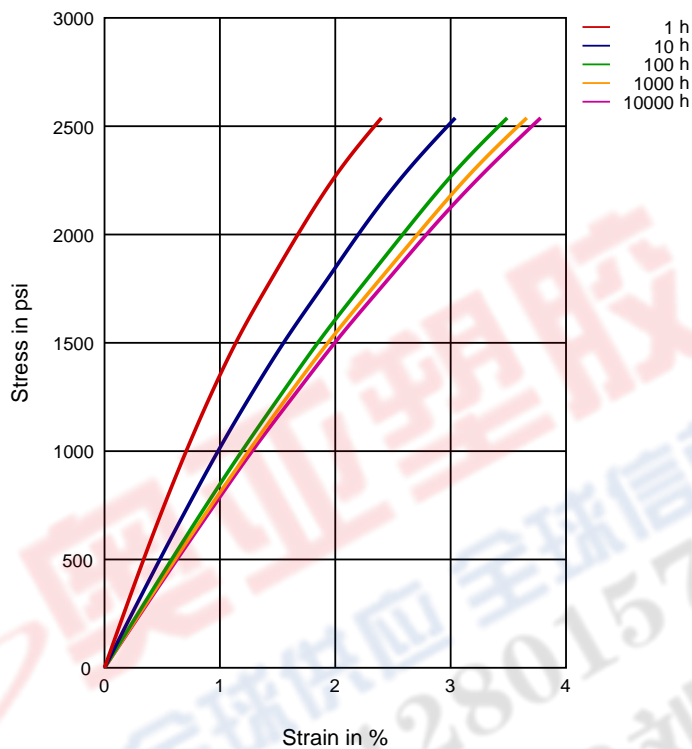
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MINERAL REINFORCED NYLON RESIN

Stress-strain (isochronous) 140°F (cond.)



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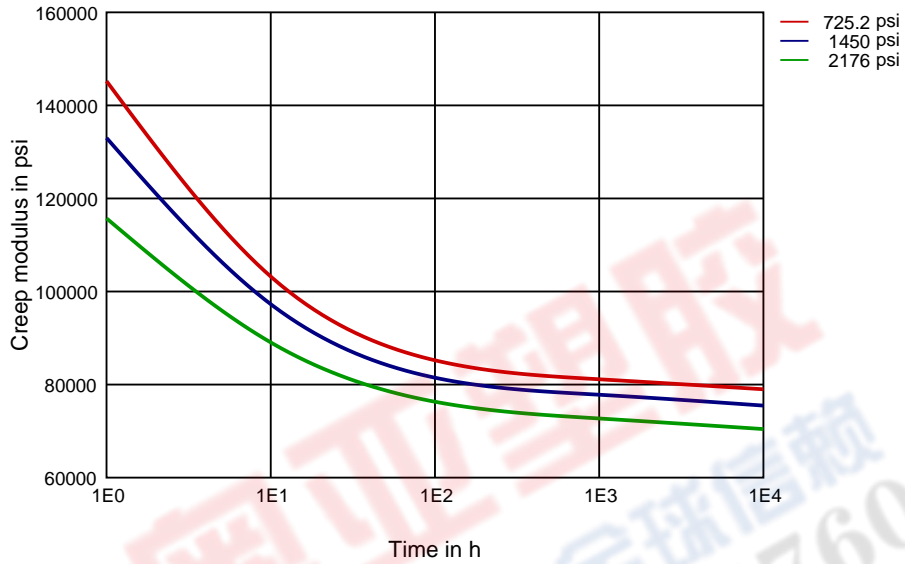
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MINERAL REINFORCED NYLON RESIN

Creep modulus-time 140°F(cond.)



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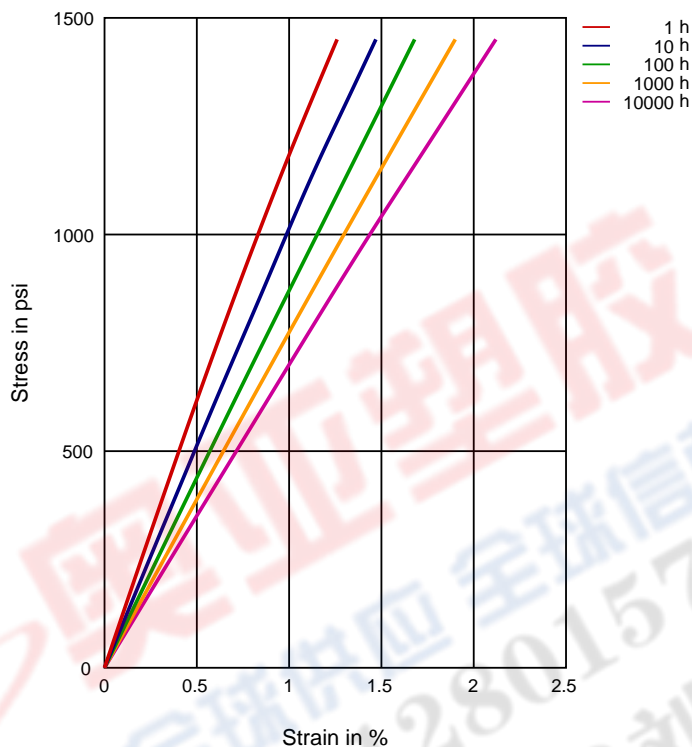
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Stress-strain (isochronous) 194°F(cond.)



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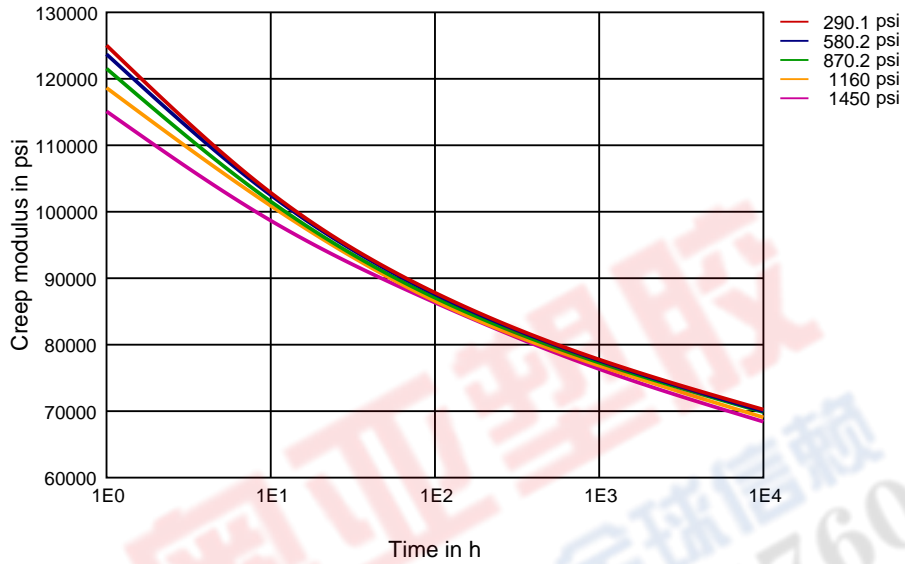
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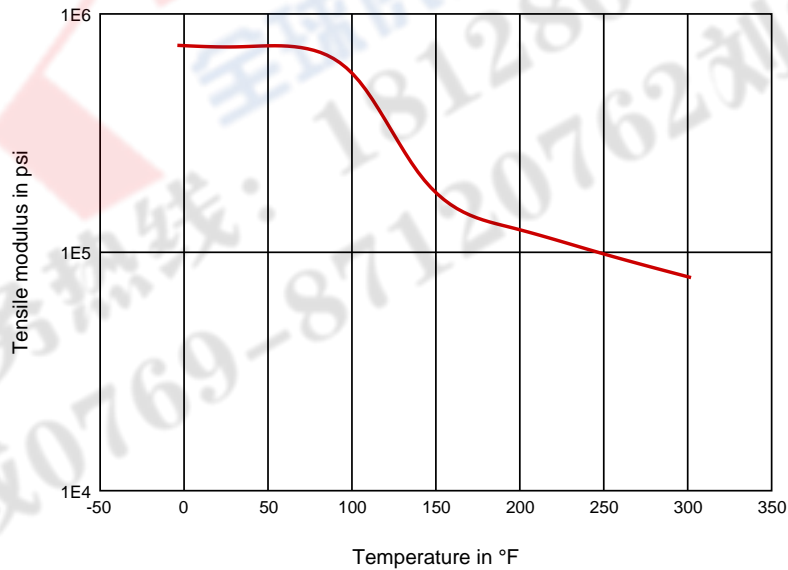
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MINERAL REINFORCED NYLON RESIN

Creep modulus-time 194°F (cond.)



Tensile modulus-temperature (dry)



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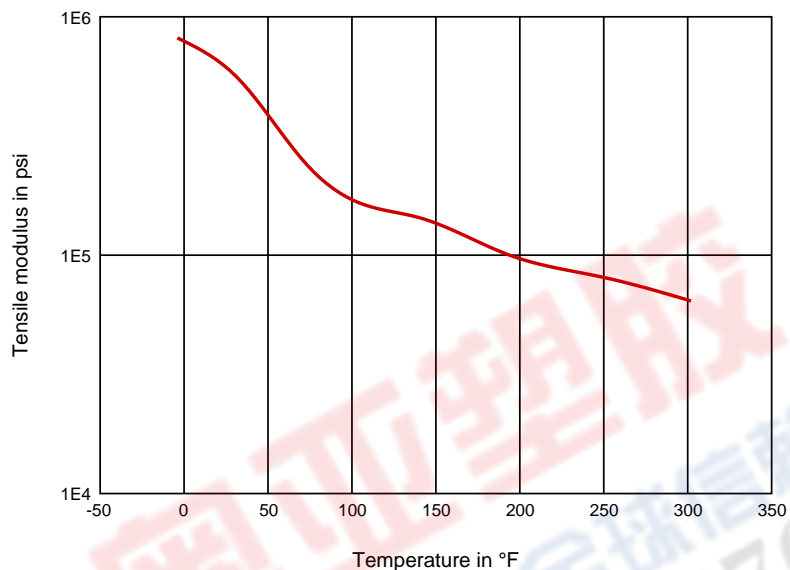
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Tensile modulus-temperature (cond.)



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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)

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)

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- ✓ 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.

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