

DuPont™ Zytel® 73G30L NC010

NYLON RESIN

Product Information

Common features of Zytel® nylon resin include mechanical and physical properties such as high mechanical strength, excellent balance of stiffness and toughness, good high temperature performance, good electrical and flammability properties, good abrasion and chemical resistance. In addition, Zytel® nylon resins are available in different modified and reinforced grades to create a wide range of products with tailored properties for specific processes and end-uses. Zytel® nylon resin, including most flame retardant grades, offer the ability to be coloured.

The good melt stability of Zytel® 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.

Zytel® nylon resin typically is used in demanding applications in the automotive, furniture, domestic appliances, sporting goods and construction industry.

Zytel® 73G30L NC010 is a 30% glass fiber reinforced polyamide 6 resin for injection molding.

General information	Value	Unit	Test Standard
Resin Identification	PA6-GF30	-	ISO 1043
Part Marking Code	PA6-GF30	-	ISO 11469
Rheological properties	dry / cond	Unit	Test Standard
Molding shrinkage, parallel	0.2 / -	%	ISO 294-4, 2577
Molding shrinkage, normal	0.6 / -	%	ISO 294-4, 2577
Mechanical properties	dry / cond	Unit	Test Standard
Tensile Modulus	1.45E6 / 870228	psi	ISO 527-1/-2
Stress at break	26100 / 17400	psi	ISO 527-1/-2
Strain at break	3.5 / 6	%	ISO 527-1/-2
Flexural Modulus	1.23E6 / 798000	psi	ISO 178
Flexural Strength	34800 / -	psi	ISO 178
Compressive strength	23200 / -	psi	ISO 604
Shear Strength	8700 / -	psi	ASTM D 732
Tensile creep modulus			ISO 899-1
1h	* / 798000	psi	
1000h	* / 653000	psi	
Charpy impact strength			ISO 179/1eU
73°F	42.8 / 47.6	ftlb/in ²	
-22°F	38.1 / 38.1	ftlb/in ²	
Charpy notched impact strength			ISO 179/1eA
73°F	6.66 / 10.9	ftlb/in ²	
-22°F	5.23 / 9.99	ftlb/in ²	
-40°F	5.23 / -	ftlb/in ²	
Izod notched impact strength			ISO 180/1A
73°F	7.14 / 9.51	ftlb/in ²	
-22°F	5.23 / 5.23	ftlb/in ²	
-40°F	5.23 / -	ftlb/in ²	
Izod impact strength			ISO 180/1U
73°F	47.6 / -	ftlb/in ²	
-22°F	42.8 / -	ftlb/in ²	
Coefficient of static friction, against steel	- / 0.26	-	ASTM 1894
Coefficient of sliding friction, 1h against steel	- / 0.32	-	ASTM 1894
Thermal properties	dry / cond	Unit	Test Standard
Melting temperature, 18°F/min	430 / *	°F	ISO 11357-1/-3
Glass transition temperature, 18°F/min	140 / -	°F	ISO 11357-1/-2
Temp. of deflection under load			ISO 75-1/-2
260 psi	410 / *	°F	
65 psi	428 / *	°F	
Coeff. of linear therm. expansion, parallel	7.78E-6 / *	in/in/°F	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	5.67E-5 / *	in/in/°F	ISO 11359-1/-2

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RTI, electrical				UL 746B
60mil	149 / *	°F		
120mil	149	°F		
RTI, impact				UL 746B
60mil	149 / *	°F		
120mil	149	°F		
RTI, strength				UL 746B
60mil	149 / *	°F		
120mil	149	°F		
Flammability	dry / cond	Unit	Test Standard	
Burning Behav. at 60mil nom. thickn.	HB / *	class	IEC 60695-11-10	
Thickness tested	0.0591 / *	in	IEC 60695-11-10	
UL recognition	yes / *	-	UL 94	
Burning Behav. at thickness h	HB / *	class	IEC 60695-11-10	
Thickness tested	0.1181 / *	in	IEC 60695-11-10	
UL recognition	yes / *	-	UL 94	
Oxygen index	21 / *	%	ISO 4589-1/-2	
FMVSS Class	B	-	ISO 3795 (FMVSS 302)	
Burning rate, Thickness 1 mm	0.984	in/min	ISO 3795 (FMVSS 302)	
Electrical properties	dry / cond	Unit	Test Standard	
Relative permittivity, 100Hz	3.8 / -	-	IEC 60250	
Dissipation factor, 100Hz	220 / -	E-4	IEC 60250	
Volume resistivity	1E12 / -	Ohm*m	IEC 60093	
Comparative tracking index				
Comparative tracking index	600 / -	-	IEC 60112	
CTI, 23°C	0 / -	PLC	UL 746A	
Other properties	dry / cond	Unit	Test Standard	
Humidity absorption, 80mil	1.9 / *	%	Sim. to ISO 62	
Water absorption, 80mil	6.3 / *	%	Sim. to ISO 62	
Density	1.36 / -	g/cm ³	ISO 1183	
VDA Properties	dry / cond	Unit	Test Standard	
Emission of organic compounds	8.5	µgC/g	VDA 277	
Odor test	3.5	class	VDA 270	
Fogging, F-value (refraction)	95 / *	%	ISO 6452	
Fogging, G-value (condensate)	0.1 / *	mg	ISO 6452	
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	• Lubricants	• Release agent	
Regional Availability	• North America	• Asia Pacific	• Near East/Africa
	• Europe	• South and Central America	• Global

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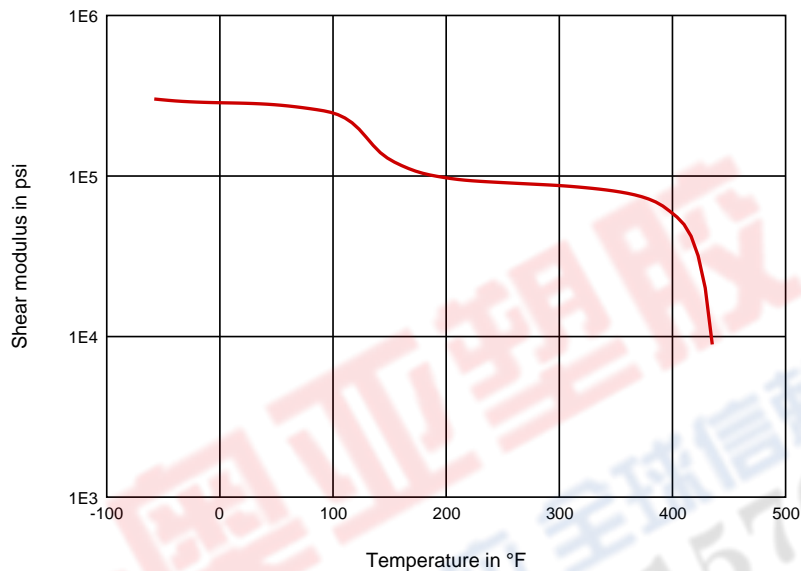
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Diagrams

Dynamic Shear modulus-temperature (dry)



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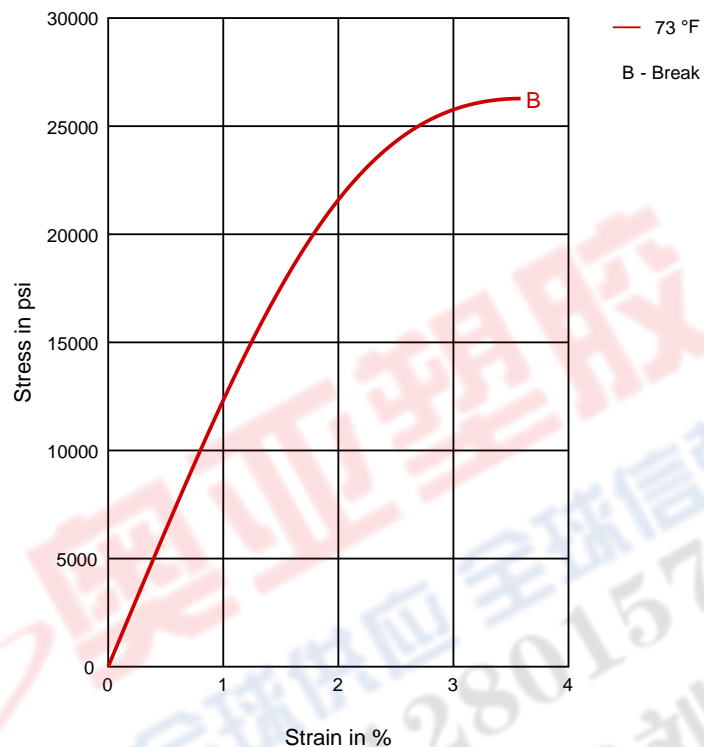
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Stress-strain (dry)



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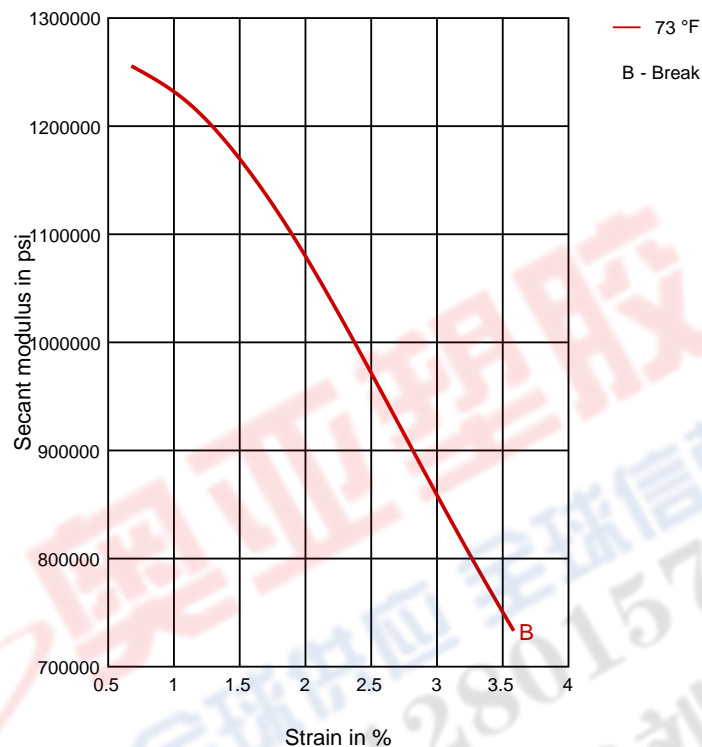


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Secant modulus-strain (dry)



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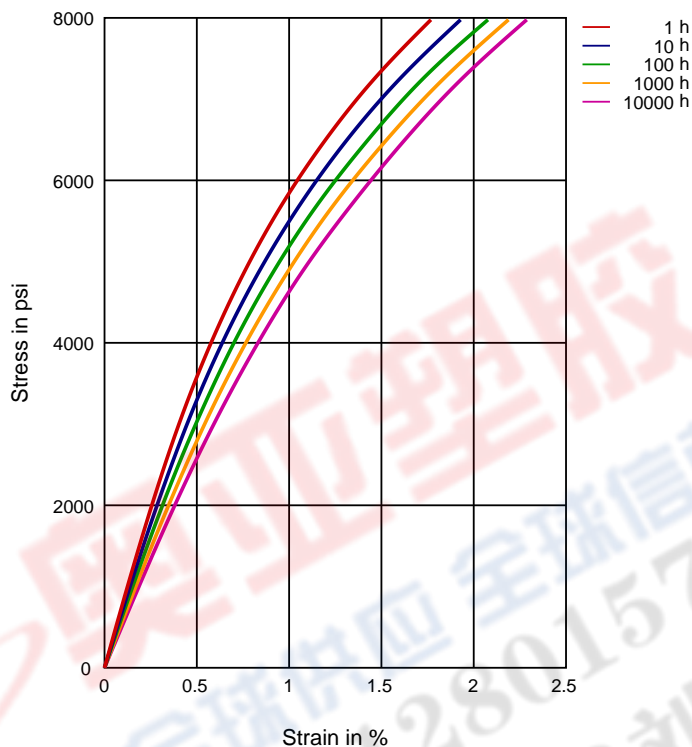


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Stress-strain (isochronous) 73°F(cond.)



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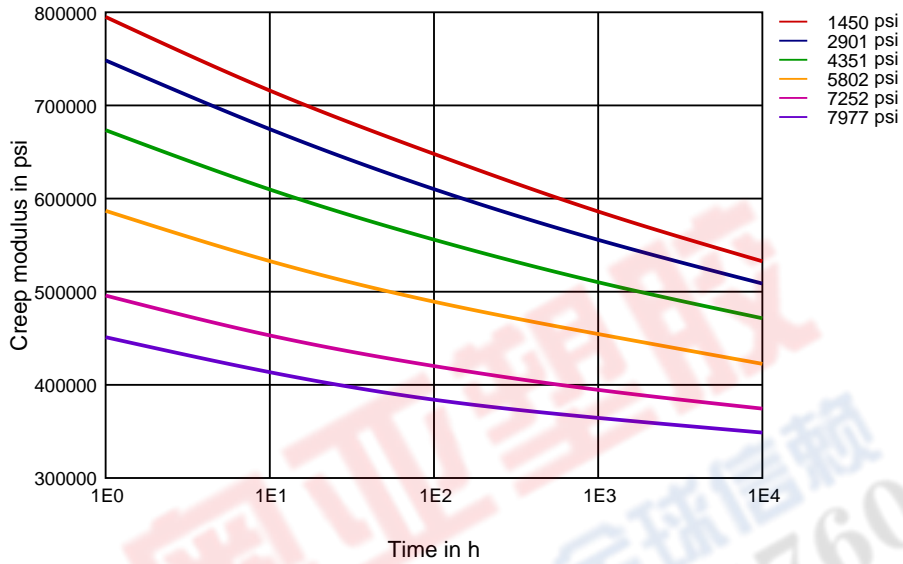
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Creep modulus-time 73 °F (cond.)



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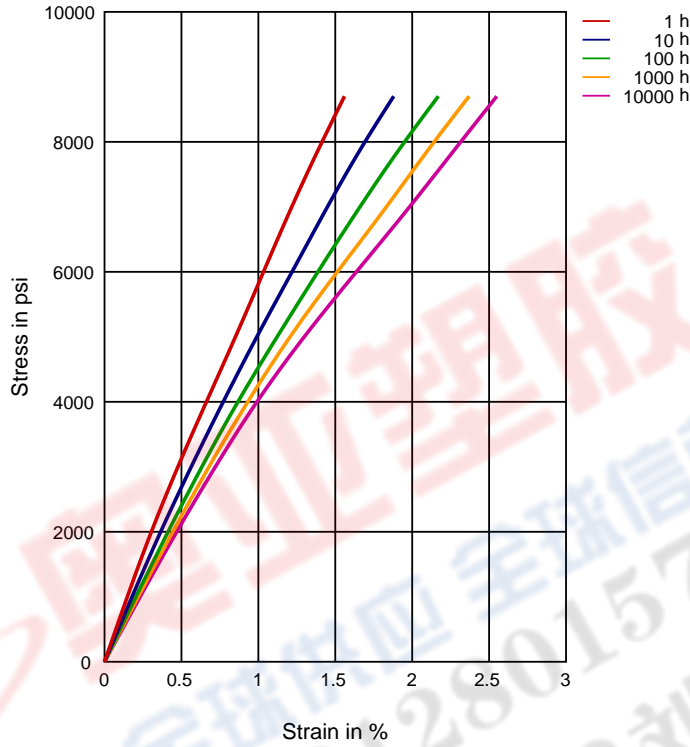
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Stress-strain (isochronous) 140°F(dry)



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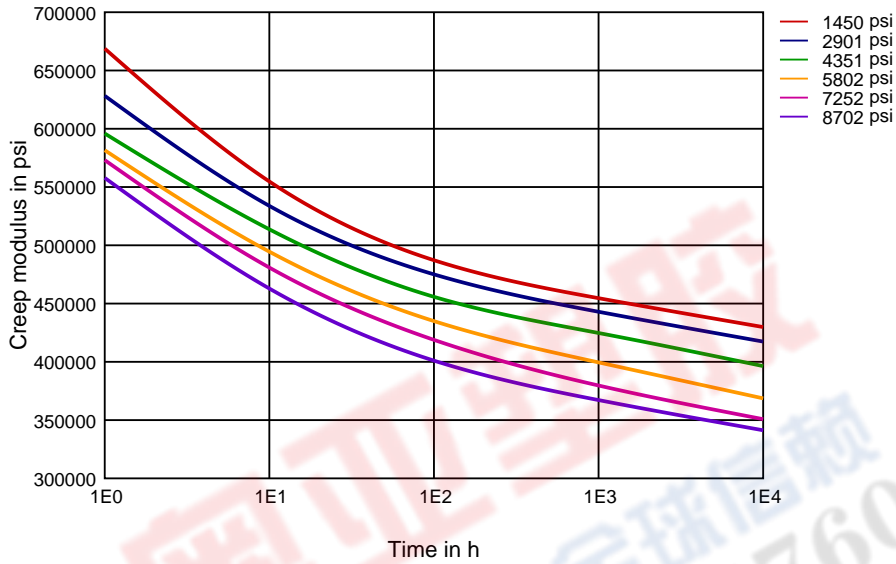
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Creep modulus-time 140°F(dry)



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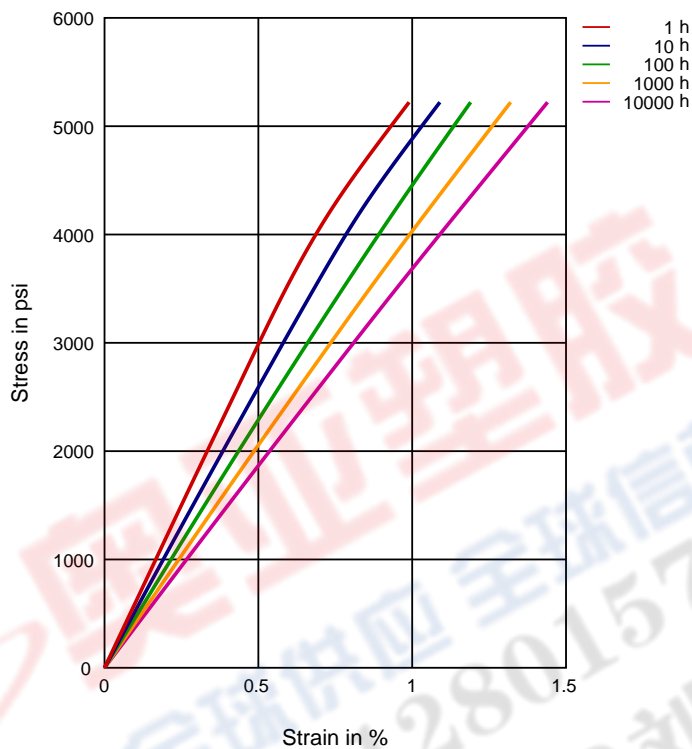
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Stress-strain (isochronous) 194°F(dry)



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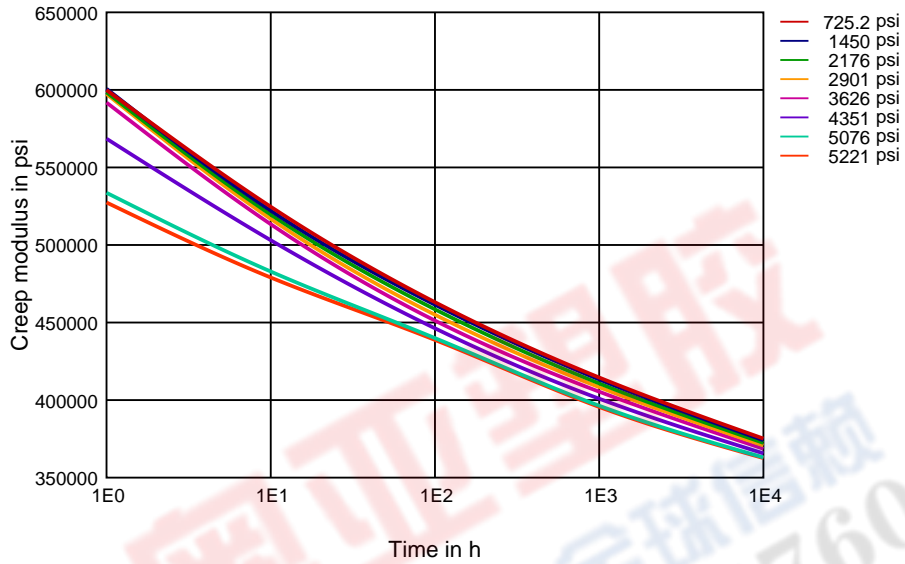
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Creep modulus-time 194°F(dry)



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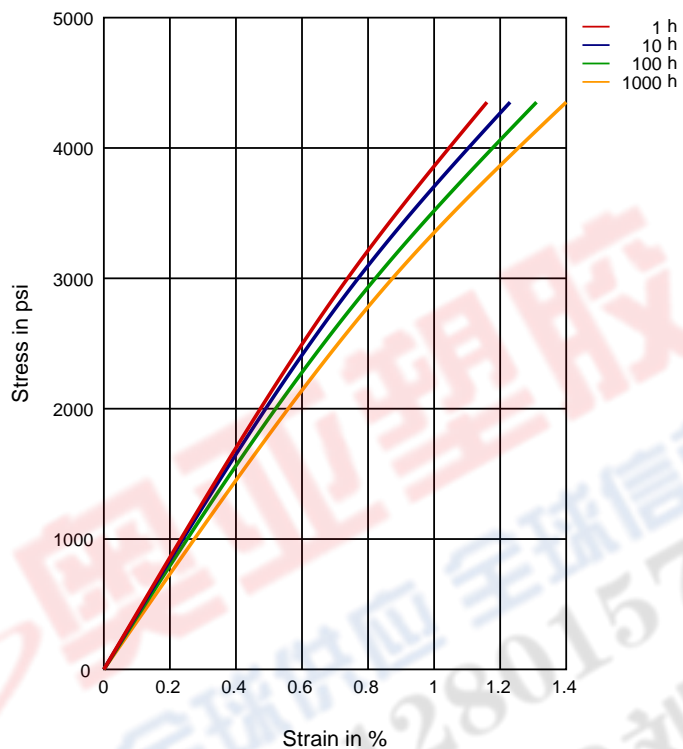
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Stress-strain (isochronous) 212°F (dry)



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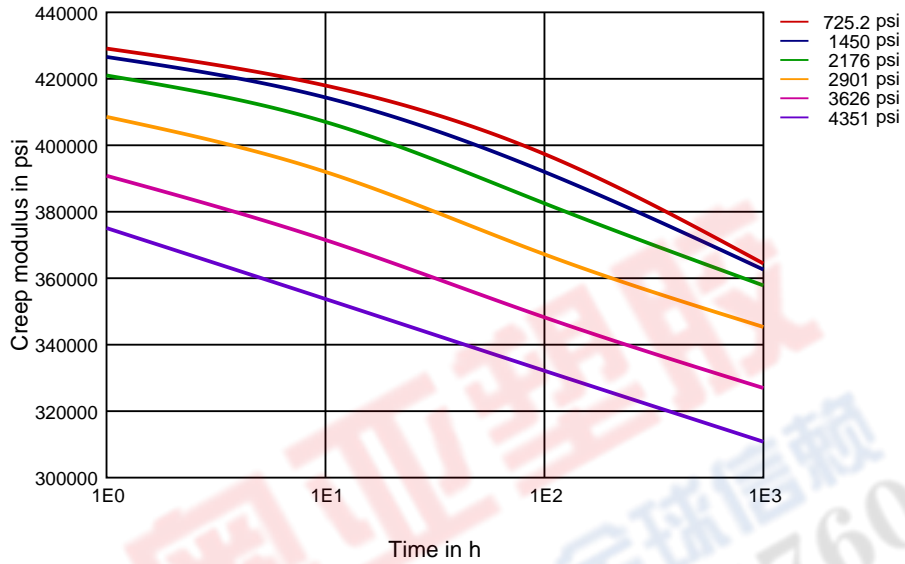
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Creep modulus-time 212°F (dry)



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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)
- ✓ DOT No. 4 Brake fluid (120°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 160 mil (Hytre® 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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