

CAMPUS® Datasheet



The miracles of science™

Zytel® 79G13L NC010 - PA66-I-GF13
DuPont Engineering Polymers

Product Texts

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® 79G13L NC010 is a 13% glass fiber reinforced, toughened polyamide 66 resin for injection molding.

Rheological properties	dry / cond	Unit	Test Standard
Molding shrinkage, parallel	0.4 / *	%	ISO 294-4, 2577
Molding shrinkage, normal	0.8 / *	%	ISO 294-4, 2577
Mechanical properties	dry / cond	Unit	Test Standard
Tensile modulus	5100 / 3700	MPa	ISO 527-1/-2
Stress at break	118 / 67	MPa	ISO 527-1/-2
Strain at break	4 / 10	%	ISO 527-1/-2
Tensile creep modulus, 1h	* / 4030	MPa	ISO 899-1
Tensile creep modulus, 1000h	* / 3180	MPa	ISO 899-1
Charpy impact strength, +23°C	67 / 59	kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	59 / 54	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, +23°C	8 / 14	kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	6 / 6	kJ/m ²	ISO 179/1eA
Thermal properties	dry / cond	Unit	Test Standard
Melting temperature, 10°C/min	263 / *	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.80 MPa	242 / *	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	260 / *	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	240 / *	°C	ISO 306
Coeff. of linear therm. expansion, parallel	50 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	130 / *	E-6/K	ISO 11359-1/-2
Burning Behav. at 1.5 mm nom. thickn.	HB / *	class	IEC 60695-11-10
Thickness tested (1.5)	1.5 / *	mm	IEC 60695-11-10
Yellow Card available	Yes / *	-	-
Burning Behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested (h)	0.8 / *	mm	IEC 60695-11-10
Yellow Card available	Yes / *	-	-
Electrical properties	dry / cond	Unit	Test Standard
Relative permittivity, 100Hz	3.9 / 9.8	-	IEC 62631-2-1
Relative permittivity, 1MHz	3.7 / 4.5	-	IEC 62631-2-1
Dissipation factor, 100Hz	65 / 2500	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	130 / 660	E-4	IEC 62631-2-1
Volume resistivity	- / 1E12	Ohm*m	IEC 62631-3-1
Surface resistivity	* / 1E14	Ohm	IEC 62631-3-2
Electric strength	37 / 35	kV/mm	IEC 60243-1

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Comparative tracking index

475 / -

-

IEC 60112

Other properties

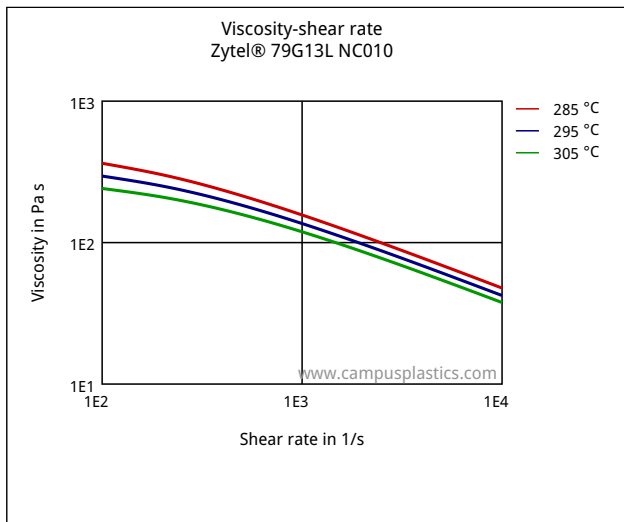
	dry / cond	Unit	Test Standard
Water absorption	6.5 / *	%	Sim. to ISO 62
Humidity absorption	2.2 / *	%	Sim. to ISO 62
Density	1210 / -	kg/m ³	ISO 1183

Rheological calculation properties

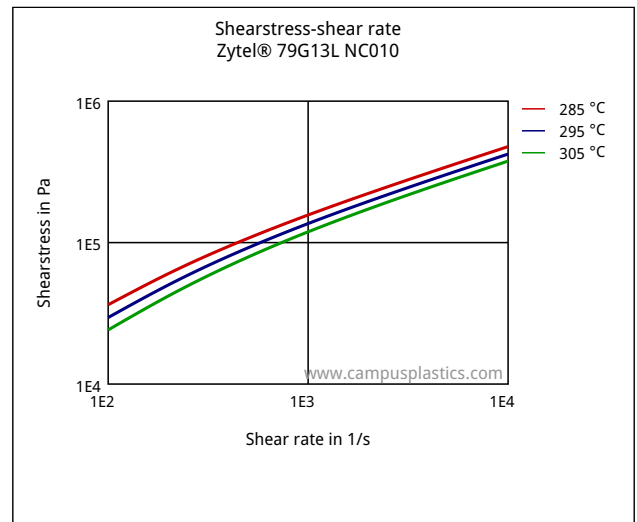
	Value	Unit	Test Standard
Density of melt	1030	kg/m ³	-
Thermal conductivity of melt	0.18	W/(m K)	-
Spec. heat capacity melt	2140	J/(kg K)	-
Eff. thermal diffusivity	7E-8	m ² /s	-
Ejection temperature	210	°C	-

Diagrams

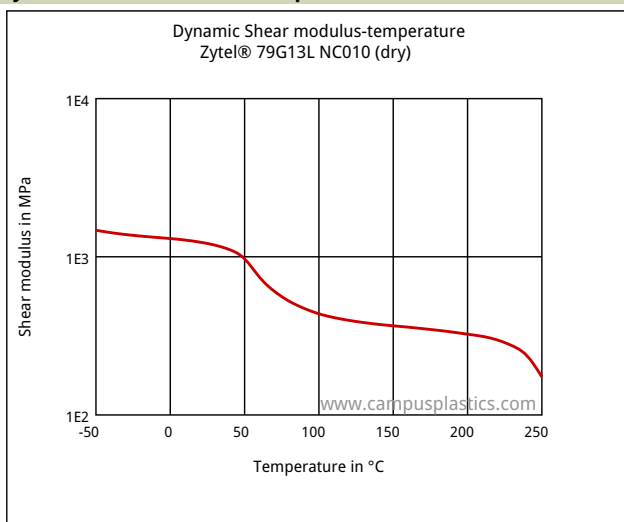
Viscosity-shear rate



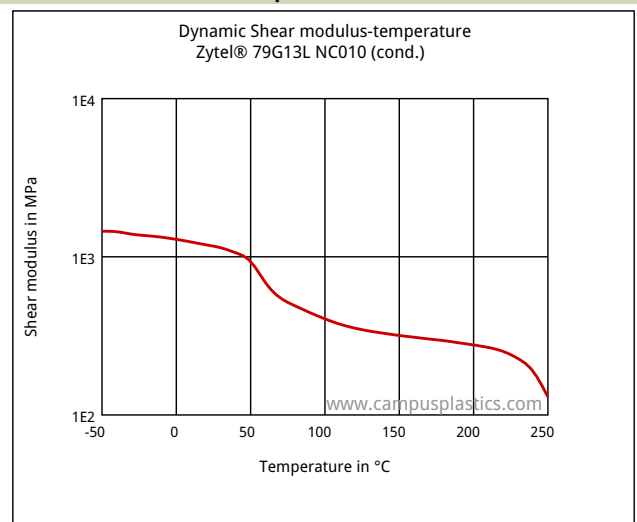
Shearstress-shear rate



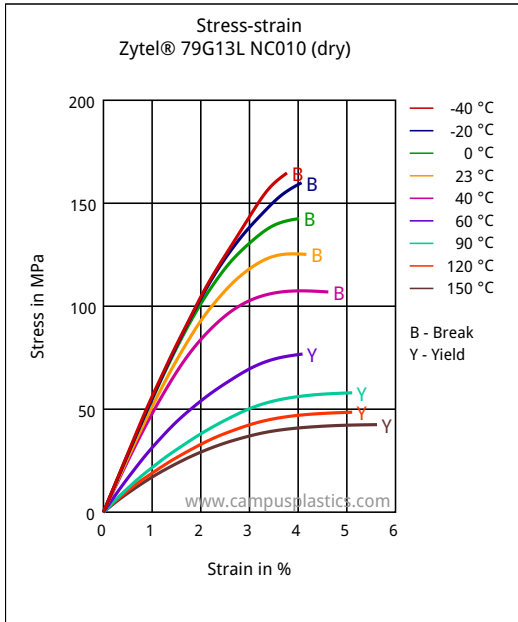
Dynamic Shear modulus-temperature



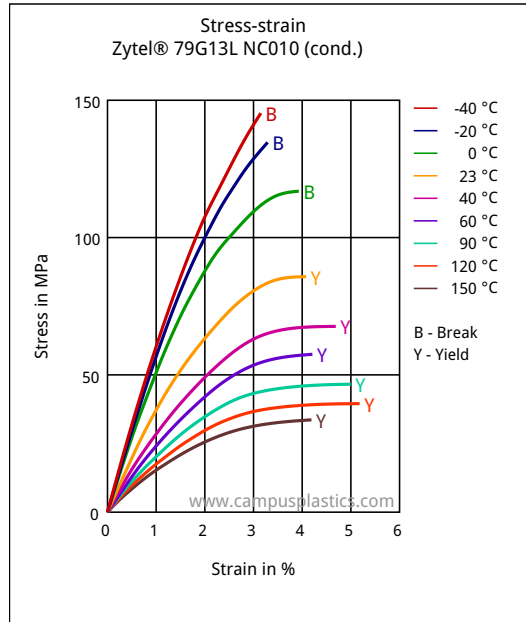
Dynamic Shear modulus-temperature



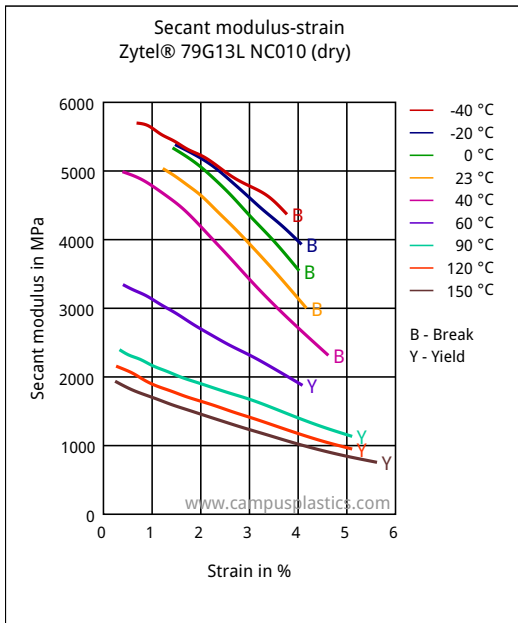
Stress-strain



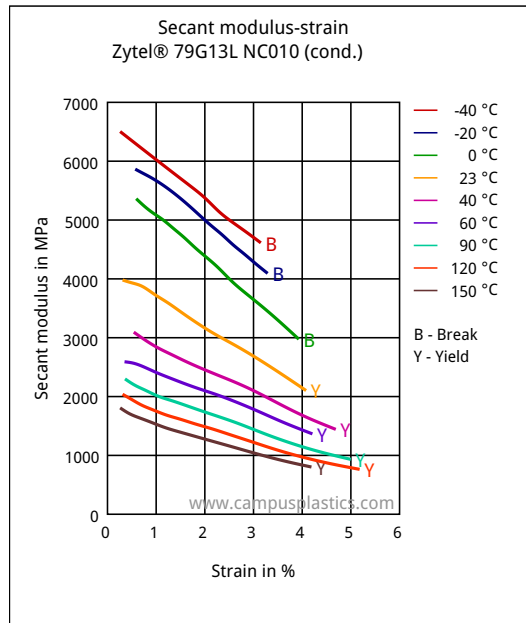
Stress-strain



Secant modulus-strain

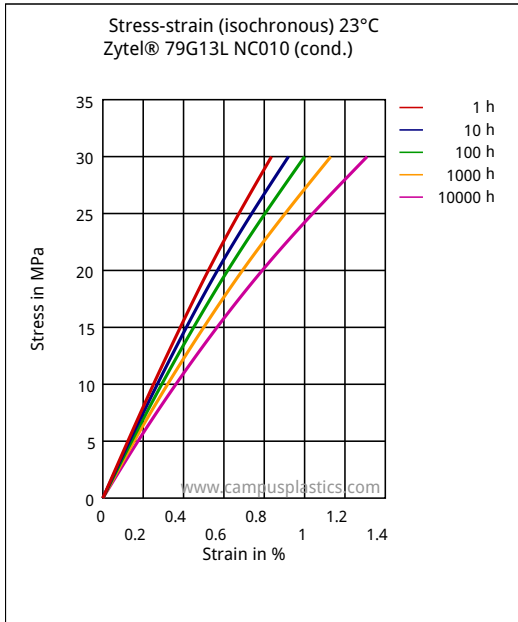


Secant modulus-strain

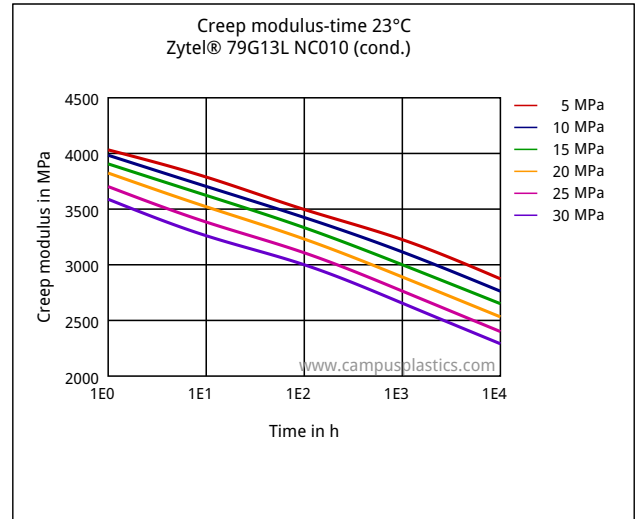


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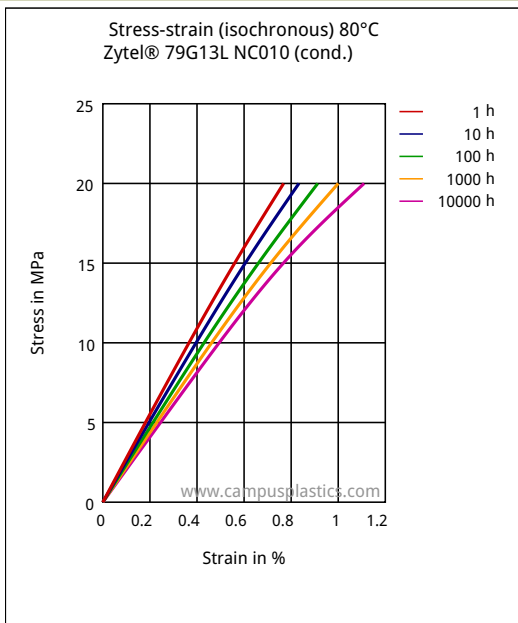
Stress-strain (isochronous) 23°C



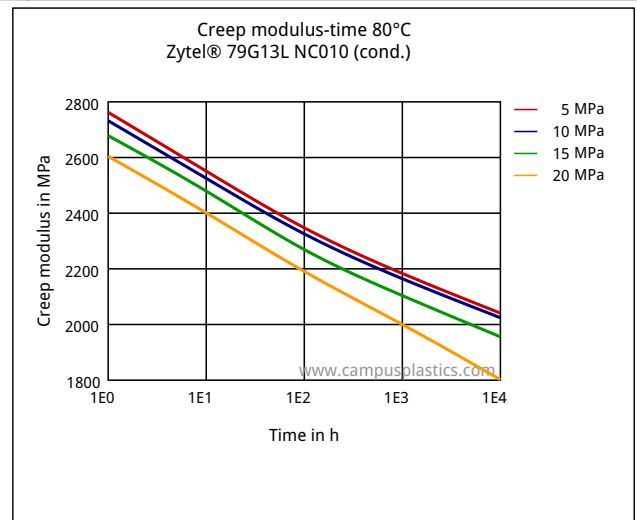
Creep modulus-time 23°C



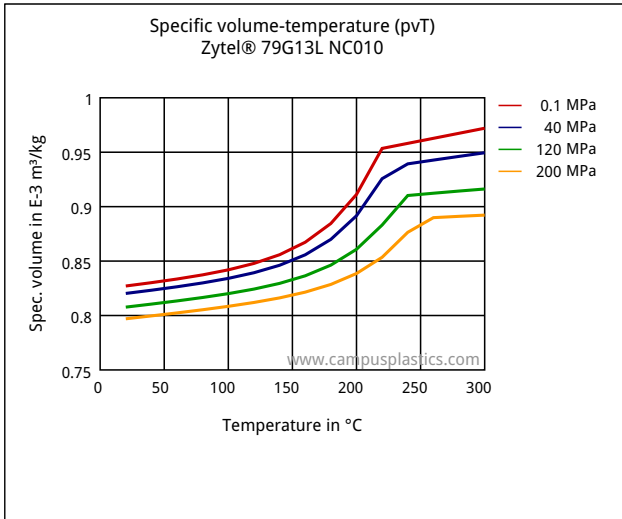
Stress-strain (isochronous) 80°C



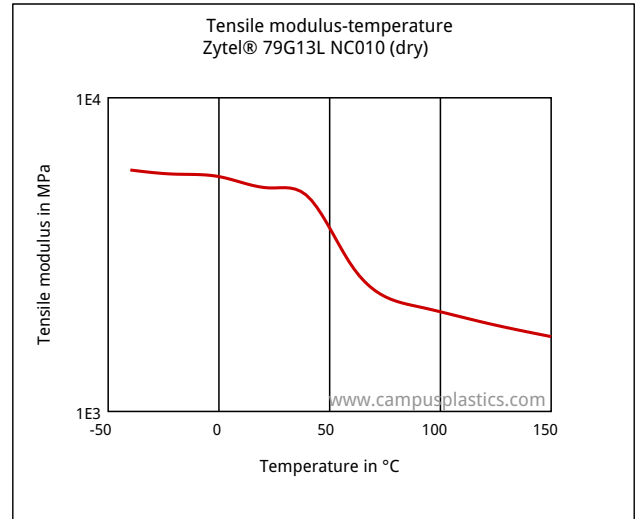
Creep modulus-time 80°C



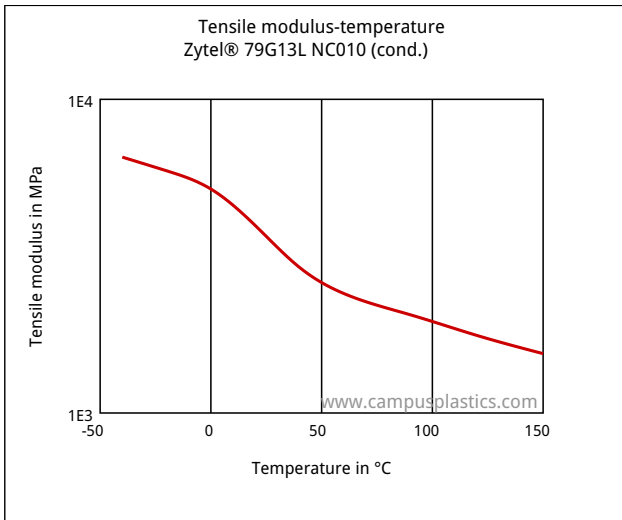
Specific volume-temperature (pvT)



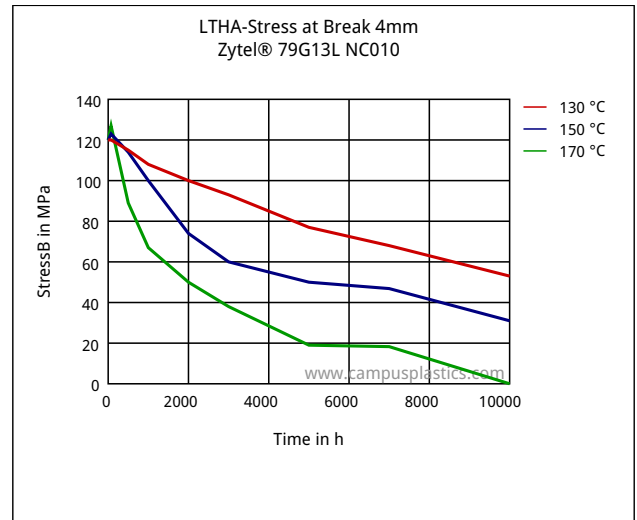
Tensile modulus-temperature



Tensile modulus-temperature

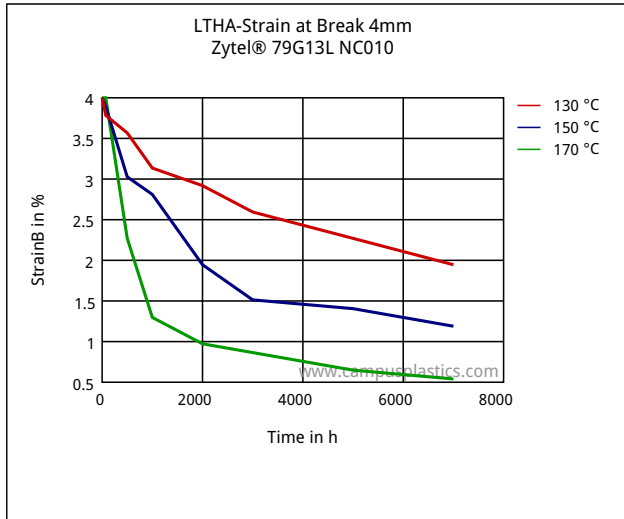


LTHA-Stress at Break 4mm



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LTHA-Strain at Break 4mm



Characteristics

Processing

Injection Molding

Additives

Lubricants, Release agent

Delivery form

Pellets

Regional Availability

Europe, Near East/Africa

Other text information

Injection molding

[Moulding guide](#)

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)

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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 (60°C)
- ☺ ISO 1817 Liquid 2 (60°C)
- ☺ ISO 1817 Liquid 3 (60°C)
- ☺ 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)
- ☺ 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)
- ☹ Deionized water (90°C)
- ☹ Phenol solution (5% by mass) (23°C)

All data provided according to ISO 10350 for single points and ISO 11403 for multipoints.

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc.

Test temperatures are 23°C unless otherwise stated.

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