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Celanese
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Zytel® FR95G25V0NH BK458

NYLON RESIN

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, we recommend, 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® FR95G25V0NH BK458 is a 25% glass fiber reinforced, flame retardant polyamide 66/6T resin for injection molding. It is halogen and red phosphorous free, has high flow characteristics and excellent long term aging properties.

Product information

Resin Identification	PA66/6T-GF25FR(40)	ISO 1043
Part Marking Code	>PA66/6T-GF25FR(40)<	ISO 11469
ISO designation	ISO 16396-PA66/6T,GF25 FR(40),M1CF1G,S12-090	

Rheological properties

	dry/cond.		
Moulding shrinkage, parallel	0.1 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.6 / -	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile modulus	9500 / 8700	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	120 / 90	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.1 / 2.2	%	ISO 527-1/-2
Flexural modulus	8500 / 8400	MPa	ISO 178
Flexural strength	180 / 160	MPa	ISO 178
Charpy impact strength, 23°C	35 / 31	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	5.2 / -	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	4.5 / -	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -40°C	4.5 / -	kJ/m²	ISO 179/1eA
Poisson's ratio	0.34 / 0.34		

Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	267 / *	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	215 / *	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C	25 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	27 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160°C	17 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	57 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	70 / *	E-6/K	ISO 11359-1/-2

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Coeff. of linear therm. expansion, normal, 55-160°C	130 / *	E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.25	W/(m K)	ISO 22007-2
Specific heat capacity of melt	2000	J/(kg K)	ISO 22007-4
RTI, electrical, 0.4mm	160	°C	UL 746B
RTI, electrical, 0.75mm	160[1]	°C	UL 746B
RTI, electrical, 1.5mm	160	°C	UL 746B
RTI, electrical, 3.0mm	160	°C	UL 746B
RTI, impact, 0.75mm	155	°C	UL 746B
RTI, impact, 1.5mm	155	°C	UL 746B
RTI, impact, 3.0mm	155	°C	UL 746B
RTI, strength, 0.75mm	155	°C	UL 746B
RTI, strength, 1.5mm	155 / *	°C	UL 746B
RTI, strength, 3.0mm	155	°C	UL 746B
Temperature index, tensile strength, 20 000h	160 / *	°C	IEC 60216-1
Temperature index, tensile strength, 5000h	190 / *	°C	IEC 60216-1

[1]: f1

Flammability

	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	V-0 / *	class	IEC 60695-11-10
Thickness tested	1.5 / *	mm	IEC 60695-11-10
UL recognition	yes[1] / *		UL 94
Burning Behav. at thickness h	V-0 / *	class	IEC 60695-11-10
Thickness tested	0.4 / *	mm	IEC 60695-11-10
UL recognition	yes / *		UL 94
Burning Behav. 5V at thickness h	5VA / *	class	IEC 60695-11-20
Thickness tested	1.5 / *	mm	IEC 60695-11-20
UL recognition	yes / *		UL 94
Oxygen index	32 / *	%	ISO 4589-1/-2
Glow Wire Flammability Index, 0.4mm	960 / -	°C	IEC 60695-2-12
Glow Wire Flammability Index, 0.75mm	960 / -	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5mm	960 / -	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3.0mm	960 / -	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 0.75mm	725 / -	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 0.4mm	700 / -	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 1.5mm	725 / -	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3.0mm	725 / -	°C	IEC 60695-2-13
FMVSS Class	DNI		ISO 3795 (FMVSS 302)

[1]: f1

Electrical properties

	dry/cond.		
Volume resistivity	>1E13 / 5E11	Ohm.m	IEC 62631-3-1
Surface resistivity	* / 8E14	Ohm	IEC 62631-3-2
Electric strength	30 / -	kV/mm	IEC 60243-1
Comparative tracking index	600 / -		IEC 60112

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Physical/Other properties

	dry/cond.		
Humidity absorption, 2mm	1.6 / *	%	Sim. to ISO 62
Water absorption, 2mm	4 / *	%	Sim. to ISO 62
Density	1440 / -	kg/m³	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	80	°C
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.1[2]	%
Melt Temperature Optimum	280	°C
Min. melt temperature	270	°C
Max. melt temperature	290	°C
Screw tangential speed	≤0.2	m/s
Mold Temperature Optimum	100	°C
Min. mould temperature	80	°C
Max. mould temperature	120	°C
Hold pressure range	50 - 100	MPa
Hold pressure time	2.5	s/mm
Ejection temperature	210	°C

[2]: FR grade below 0.1%

Characteristics

Processing	Injection Moulding
Additives	Flame retardant, Non-halogenated/Red phosphorous free flame retardant
Special characteristics	Flame retardant

Automotive

OEM	STANDARD	ADDITIONAL INFORMATION
General Motors	GMW18122P-PA-GF25-TypeA2	Black
Stellantis	B62 0300 / 61/U4/225E/216M/11/C2B/C4	01378_19_02646

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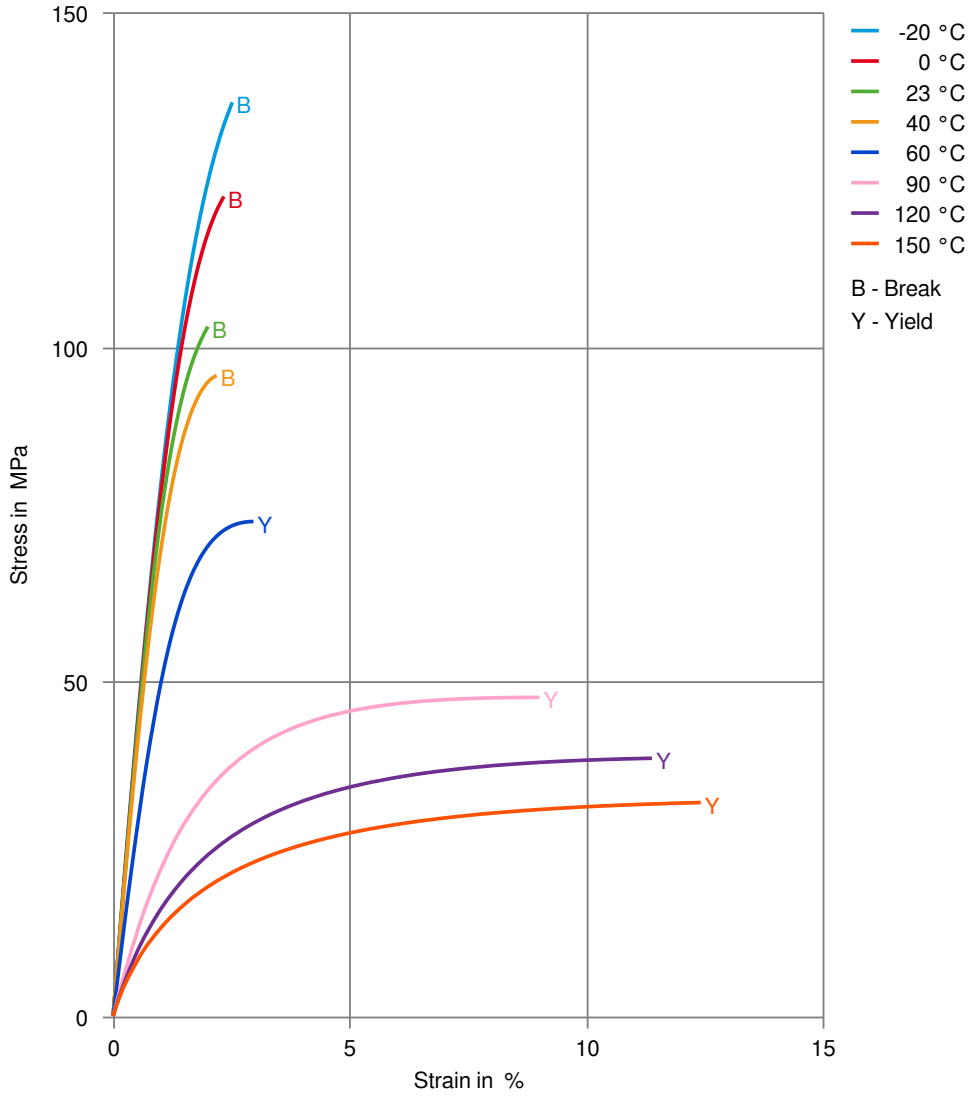
Stress-strain (dry)



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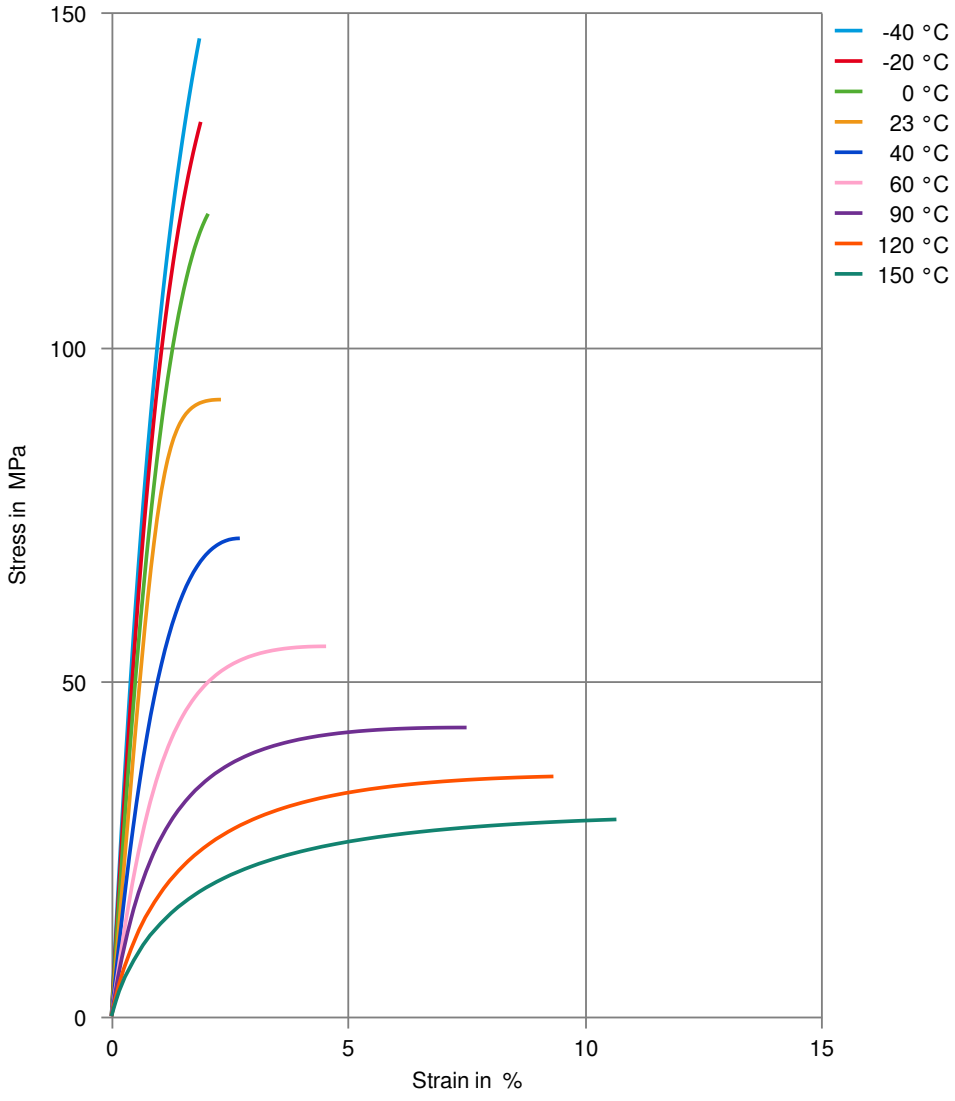
Stress-strain (cond.)



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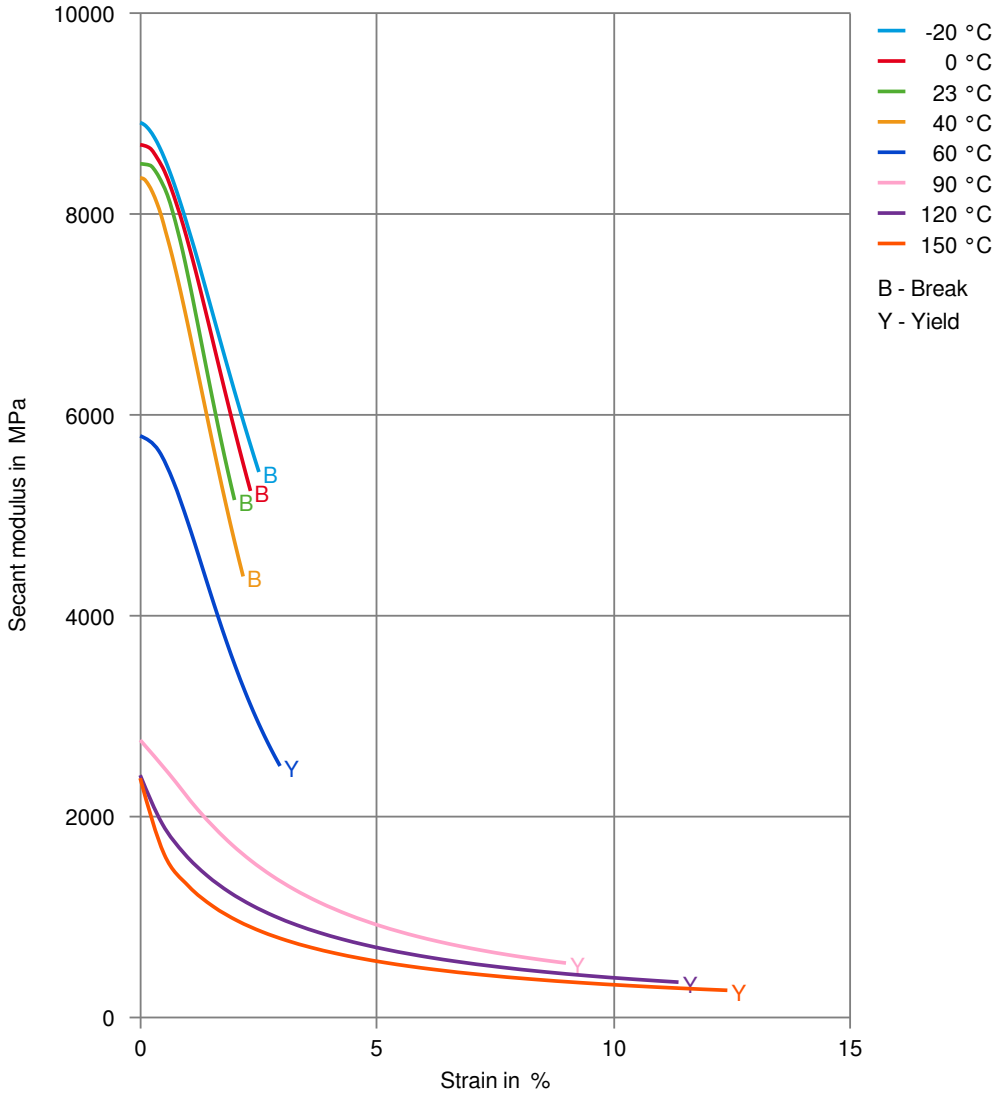
NYLON RESIN

Secant modulus-strain (dry)



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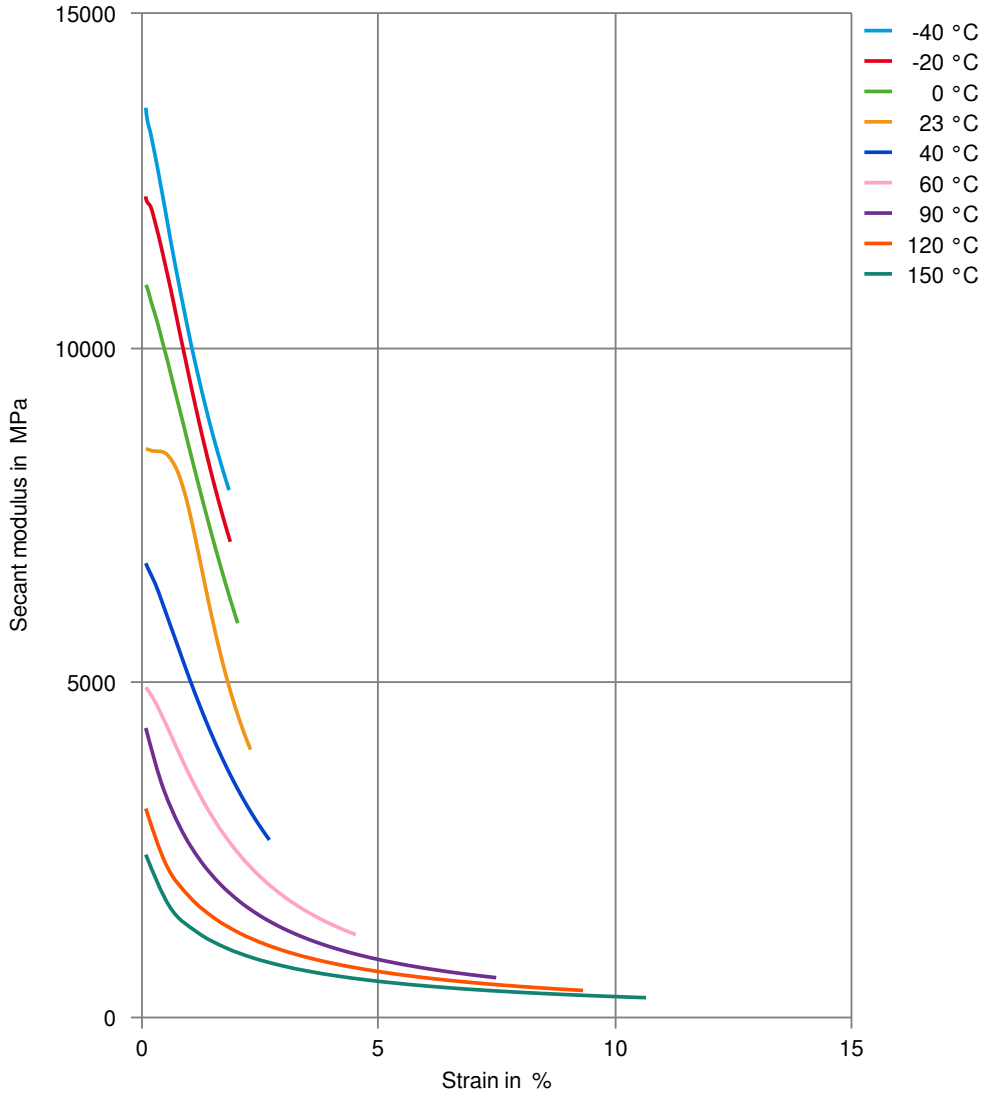
NYLON RESIN

Secant modulus-strain (cond.)



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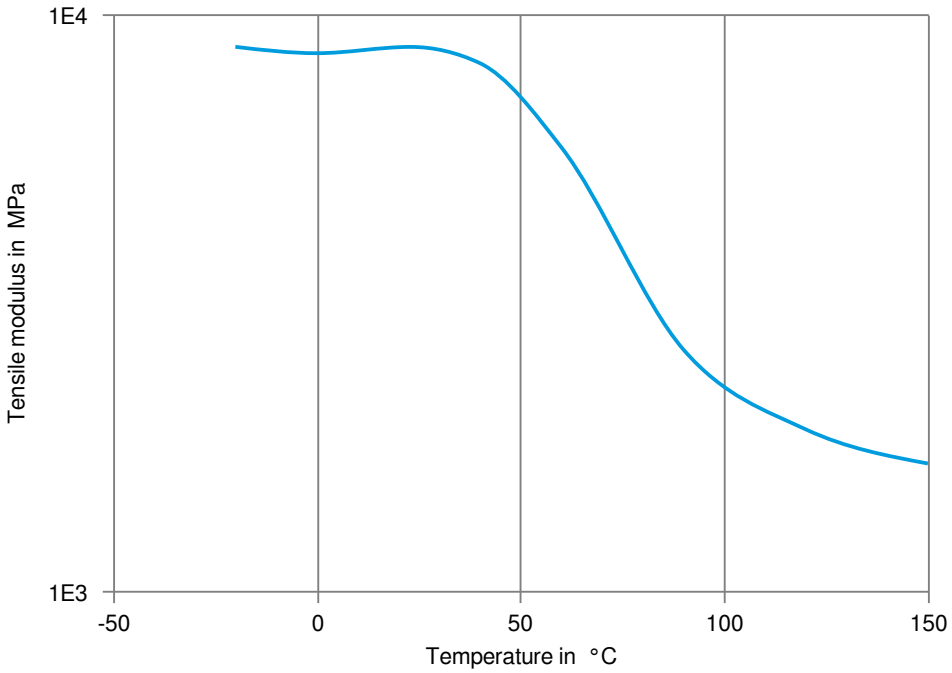
NYLON RESIN

Tensile modulus-temperature (dry)



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Mineral oils

Mineral oils

- ✔ SAE 10W40 multigrade motor oil, 130 °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
- ✔ 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

- ✘ Zinc Chloride solution (50% by mass), 23 °C

Other

- ✔ Water, 23 °C
- ✘ Water, 90 °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).

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 cause significant variations in data values. Properties of moulded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, 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 seek and adhere to the manufacturer's current instructions for handling each material they use, and entrust the handling of such material to adequately trained personnel only. Please call the telephone numbers listed for additional technical information. Call Customer Services for the appropriate Materials Safety Data Sheets (MSDS) before attempting to process our products.
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