

# Zytel® FN727 NC010A

## 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® FN727 NC010A is an impact modified, plasticizer free, very flexible polyamide 6 alloy resin having good low temperature toughness, good heat aging and good chemical resistance. Uses include cable jacketing, hose and tube applications.

### Product information

Resin Identification	PA6-F	ISO 1043
Part Marking Code	>PA6-F<	ISO 11469
ISO designation	ISO 16396-PA6-F,,M1G1N,S14-010	

### Rheological properties

	dry/cond.		
Moulding shrinkage, parallel	0.8/-	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.2/-	%	ISO 294-4, 2577

### Typical mechanical properties

	dry/cond.		
Tensile Modulus	900/330	MPa	ISO 527-1/-2
Stress at 50% strain	28/16	MPa	ISO 527-1/-2
Strain at break, 5mm/min	>50/>50	%	ISO 527-1/-2
Flexural Modulus	900/-	MPa	ISO 178
Charpy notched impact strength, 23°C	130/-	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	65/-	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	N/-	kJ/m²	ISO 180/1A
Poisson's ratio	0.45/0.48		

### Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	221/*	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	60/55	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	48/*	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	55/*	°C	ISO 75-1/-2

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Thermal conductivity of melt	0.16	W/(m K)	Internal
Spec. heat capacity of melt	2700	J/(kg K)	Internal

### Flammability

FMVSS Class	B	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	27 mm/min	ISO 3795 (FMVSS 302)

### Other properties

	dry/cond.		
Humidity absorption, 2mm	1.4 / *	%	Sim. to ISO 62
Density	1020 / -	kg/m <sup>3</sup>	ISO 1183
Density of melt	870	kg/m <sup>3</sup>	Internal

### Injection

Drying Recommended	yes		
Drying Time, Dehumidified Dryer	2 - 4 h		
Processing Moisture Content	≤0.1 %		
Melt Temperature Optimum	260 °C		Internal
Min. melt temperature	250 °C		
Max. melt temperature	280 °C		
Min. mould temperature	40 °C		
Max. mould temperature	80 °C		

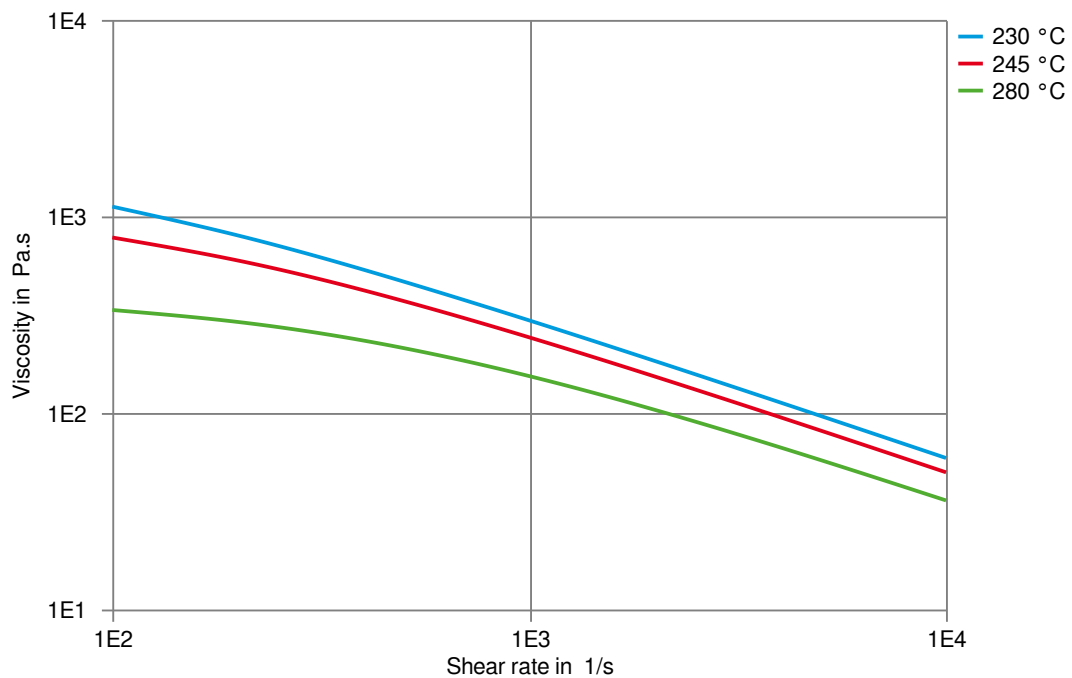
### Extrusion

Drying Temperature	80 °C
Drying Time, Dehumidified Dryer	4 - 6 h
Processing Moisture Content	≤0.05 %
Melt Temperature Optimum	235 °C
Melt Temperature Range	230 - 240 °C

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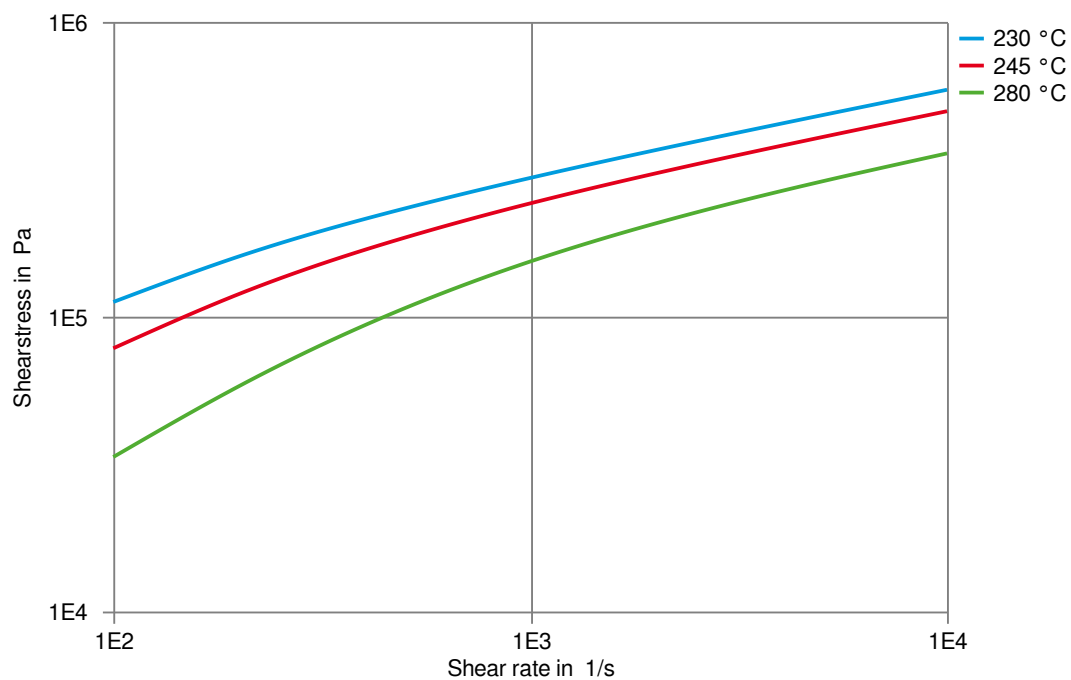
Viscosity-shear rate



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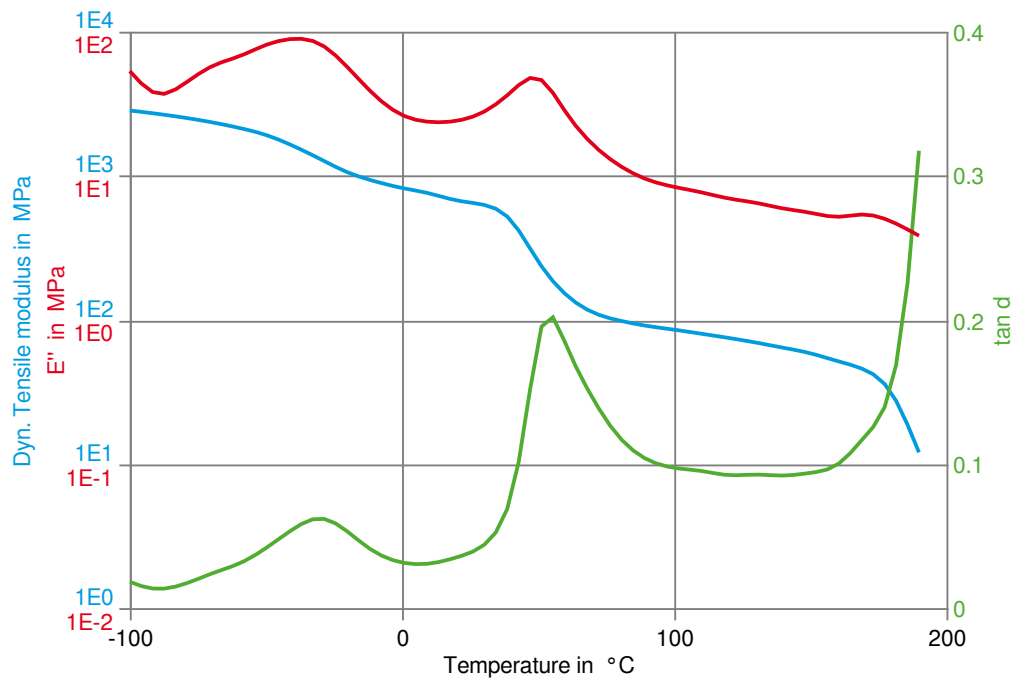
Shearstress-shear rate



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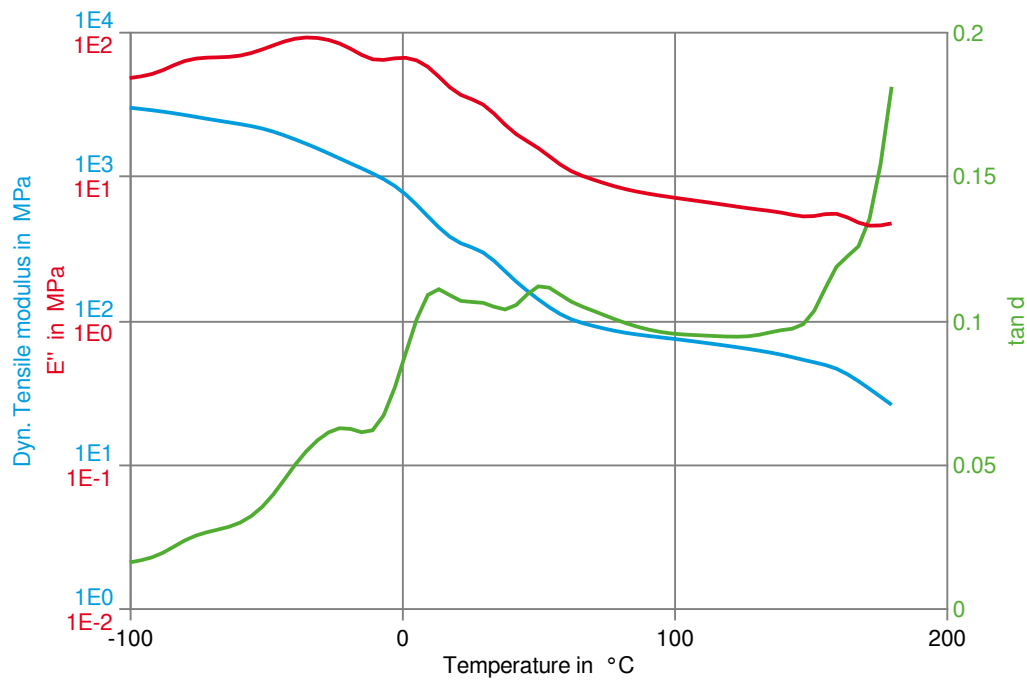
Dynamic Tensile modulus-temperature (dry)



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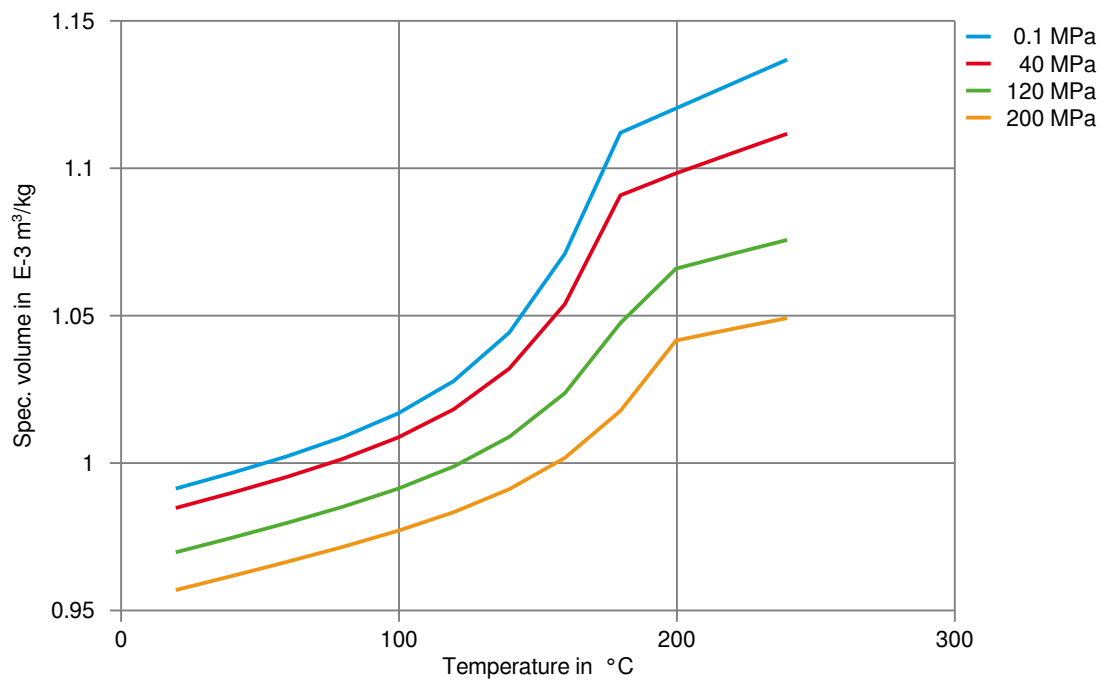
Dynamic Tensile modulus-temperature (cond.)



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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

#### 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



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### 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).