

DuPont™ Zytel® FR15 NC010

NYLON RESIN

Product Information

Zytel® FR15 NC010 is an Unreinforced, Flame Retardant, Non-Halogenated, Polyamide 66

General information	Value	Unit	Test Standard
Resin Identification	PA66-FR(30)	-	ISO 1043
Part Marking Code	PA66-FR(30)	-	ISO 11469
Rheological properties	dry / cond	Unit	Test Standard
Molding shrinkage, parallel	0.9 / -	%	ISO 294-4, 2577
Molding shrinkage, normal	0.8 / -	%	ISO 294-4, 2577
Mold Shrinkage, Flow, 3.2mm (0.125in)	0.9 / *	%	-
Mechanical properties	dry / cond	Unit	Test Standard
Tensile Modulus	3700 / -	MPa	ISO 527-1/-2
Stress at break	85 / -	MPa	ISO 527-1/-2
Strain at break	6 / -	%	ISO 527-1/-2
Flexural Modulus	3300 / -	MPa	ISO 178
Flexural Strength	105 / -	MPa	ISO 178
Charpy notched impact strength, 73°F	3 / -	kJ/m ²	ISO 179/1eA
Hardness, Rockwell, M-scale	80 / -	-	ISO 2039-2 A
Hardness, Rockwell, R-scale	120 / -	-	ISO 2039-2
A: Assessed			
Thermal properties	dry / cond	Unit	Test Standard
Melting temperature, 18°F/min	262 / *	°C	ISO 11357-1/-3
Temp. of deflection under load, 260 psi	85 / *	°C	ISO 75-1/-2
RTI, electrical			UL 746B
30mil	130 / *	°C	
60mil	130 / *	°C	
120mil	130	°C	
RTI, impact			UL 746B
30mil	75	°C	
60mil	75 / *	°C	
120mil	75	°C	
RTI, strength			UL 746B
30mil	85	°C	
60mil	85 / *	°C	
120mil	85	°C	
Flammability	dry / cond	Unit	Test Standard
Glow Wire Flammability Index			IEC 60695-2-12
30mil	960 / -	°C	
60mil	960 / -	°C	
120mil	960 / -	°C	
Glow Wire Ignition Temperature			IEC 60695-2-13
30mil	725 / -	°C	
60mil	725 / -	°C	
120mil	725 / -	°C	
Flammability			IEC 60695-11-10
0.75mm	V-0 / *	-	
1.5mm	V-0 / *	-	
3.0mm	V-0 / *	-	
Fl. 0.75mm, UL Yellow Card			-
Fl. 0.75mm, UL Yellow Card	V-0 / *	-	
Fl. 1.5mm, UL Yellow Card	V-0 / *	-	
Fl. 3.0mm, UL Yellow Card	V-0 / *	-	
Oxygen Index	32 / *	%	ASTM D 2863

To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

North America

Asia Pacific

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Hot Wire Ignition			UL 746A
30mil	11 / *	s	
60mil	23 / *	s	
120mil	72 / *	s	
FMVSS Class	B	-	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<100	mm/min	ISO 3795 (FMVSS 302)
Electrical properties	dry / cond	Unit	Test Standard
Comparative tracking index	600 / -	-	IEC 60112
Dielectric Strength, Short Time, 500 V/s, in oil, 23°C, 1.6mm (0.062in)	27 / -	kV/mm	ASTM D 149
High Amperage Arc Ignition Resistance			UL 746A
30 mil	99 / *	arcs	
60 mil	143 / *	arcs	
120 mil	149 / *	arcs	
Other properties	dry / cond	Unit	Test Standard
Density	1170 / -	kg/m ³	ISO 1183
Injection	dry / cond	Unit	Test Standard
Drying Recommended	yes	-	-
Drying Temperature	≥80	°C	-
Drying Time, Dehumidified Dryer	2 - 4	h	-
Processing Moisture Content	≤0.2	%	-
Melt Temperature Optimum	270	°C	-
Min. melt temperature	260	°C	-
Max. melt temperature	280	°C	-
Max. screw tangential speed	0.2 / *	m/s	-
Mold Temperature Optimum	70	°C	-
Min. mold temperature	50	°C	-
Max. mold temperature	90	°C	-
Hold pressure range	50 - 100	MPa	-
Hold pressure time	3.5	s/mm	-
Back pressure	As low as possible		-
Maximum hold up time	≤15	min	-
Characteristics			
Processing	• Injection Molding		
Delivery form	• Pellets		
Additives	• Lubricants	• Release agent	

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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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