Zytel® FR70G30V0NH2-N OR169

NYLON RESIN

Zytel® FR70G30V0NH2 OR169 is a 30% glass fiber reinforced, heat stabilized, flame retardant polyamide 66 resin for injection molding. It is halogen and red phosphorous free.

Typical mechanical properties

	dry/cond.		
Tensile modulus	1.67E6 / 1.1 6E6[DS]	psi	ISO 527-1/-2
Tensile stress at break, 5mm/min	24700 / 16700[DS]	psi	ISO 527-1/-2
Tensile strain at break, 5mm/min	3 / 5[DS]	%	ISO 527-1/-2
Charpy impact strength, 23°C	38.1 / 35.7[DS]	ftlb/in²	ISO 179/1eU
Charpy impact strength, -40°C	30.9 / 30.9[DS]	ftlb/in²	ISO 179/1eU
Charpy notched impact strength, 23°C	5.71 / 6.66[DS]	ftlb/in²	ISO 179/1eA
Charpy notched impact strength, -40°C	5.71 / 4.76[DS]	ftlb/in²	ISO 179/1eA

[DS]: Derived from similar grade

Thermal properties

	dry/cond.		
Melting temperature, first heat	500 / *	°F	ISO 11357-1/-3
Freezing temperature, 10°C/min	437 / *	°F	ISO 11357-1/-2

Flammability

	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	V-0 / *	class	IEC 60695-11-10

Electrical properties

	dry/cond.		
Comparative tracking index	600 / -		IEC 60112

Physical/Other properties

	dry/cond.		
Density	0.0513 / -	lb/in³	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	176	°F
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.1	%
Melt Temperature Optimum	536	°F
Min. melt temperature	518	°F
Max. melt temperature	554[1]	°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

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Hold Pressure Time (h is the max. wall thickness of the part in mm)	h^2+2	s
Ejection temperature	410	°F

[1]: Melt temp can be up to 300C in case that moisture is low and residence time is short.

Characteristics

Processing	Injection Molding
Additives	Release agent, Flame retardant, Non-halogenated/Red phosphorus free flame retardant
Special characteristics	Flame retardant, Thermal shock resistant

Additional information

Injection molding	Moulding datasheets 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

Hydrocarbons

- ✔ n-Hexane, 23°C
- ✔ Toluene, 23°C
- ✔ iso-Octane, 23°C

Ketones

- ✔ Acetone, 23°C

Ethers

- ✔ Diethyl ether, 23°C

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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

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).

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