Celanese
The chemistry inside innovation™

Rynite® FR533NH NC010 (PRELIMINARY)

THERMOPLASTIC POLYESTER RESIN

Common features of Rynite® thermoplastic polyester include mechanical and physical properties such as excellent balance of strength and stiffness, dimensional stability, creep resistance, heat resistance, high surface gloss and good inherent electrical properties at elevated temperature. It can be processed over a broad temperature range and has excellent flow properties.

Rynite® thermoplastic polyester resins are typically used in demanding applications in the automotive, electrical and electronics, appliances where they successfully replace metals and thermosets, as well as other thermoplastic polymers.

Rynite® FR533NH NC010 is a 33% glass reinforced, modified polyethylene terephthalate resin using a non-halogenated flame retardant.

Product information

Resin Identification	PET-GF33FR(40)	ISO 1043
Part Marking Code	>PET-GF33FR(40)<	ISO 11469

Rheological properties

Moulding shrinkage, parallel	0.3	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.7	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	13100	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	85	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	0.9	%	ISO 527-1/-2
Flexural modulus	13000	MPa	ISO 178
Flexural strength	140	MPa	ISO 178
Charpy notched impact strength, 23°C	11	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -40°C	11	kJ/m²	ISO 179/1eA
Poisson's ratio	0.33		

Thermal properties

Melting temperature, 10°C/min	249	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	90	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	240	°C	ISO 75-1/-2
Ball pressure test	230	°C	IEC 60695-10-2
Coeff. of linear therm. expansion, parallel, -40-23°C	18	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	18	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160°C	11	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	51	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	72	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	81	E-6/K	ISO 11359-1/-2
RTI, electrical, 0.4mm	155	°C	UL 746B
RTI, electrical, 0.75mm	155	°C	UL 746B
RTI, electrical, 1.5mm	155	°C	UL 746B
RTI, electrical, 3.0mm	155	°C	UL 746B
RTI, impact, 0.75mm	160	°C	UL 746B

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RTI, impact, 1.5mm	170	°C	UL 746B
RTI, impact, 3.0mm	170	°C	UL 746B
RTI, strength, 0.75mm	160	°C	UL 746B
RTI, strength, 1.5mm	170	°C	UL 746B
RTI, strength, 3.0mm	170	°C	UL 746B

Flammability

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		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
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	825	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.5mm	775	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3.0mm	850	°C	IEC 60695-2-13
Railway classification	R22		EN 45545-2
Railway classification rating	HL1		EN 45545-2

Electrical properties

Volume resistivity	1E13	Ohm.m	IEC 62631-3-1
Electric strength	34	kV/mm	IEC 60243-1
Comparative tracking index	350		IEC 60112
Comparative tracking index, 3.0mm	2	PLC	UL 746A

Physical/Other properties

Density	1610	kg/m^3	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	120	°C
Drying Time, Dehumidified Dryer	4 - 6	h
Processing Moisture Content	≤0.01[1]	%
Melt Temperature Optimum	275	°C
Min. melt temperature	270	°C
Max. melt temperature	280	°C
Mold Temperature Optimum	130	°C
Min. mould temperature	120	°C
Max. mould temperature	140[2]	°C
Ejection temperature	192	°C

[1]: At levels above 0.02%, strength and toughness will decrease, even though parts may not exhibit surface defects.

[2]: (6mm - 1mm thickness)

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Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Additives	Flame retardant, Non-halogenated/Red phosphorous free flame retardant
Special characteristics	Flame retardant, Heat stabilised or stable to heat

Revised: 2025-04-29 Source: Celanese Materials Database