Celanese
The chemistry inside innovation™

Rynite® RE5231 BK533

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® RE5231 BK533 is a 35% glass/mica reinforced modified polyethylene terephthalate resin with excellent electrical properties.

Product information

Resin Identification	PET-(GF+MD)35		ISO 1043
Part Marking Code	>PET-(GF+MD)35<		ISO 11469

Rheological properties

Moulding shrinkage, parallel	0.3	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.6	%	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	10000	MPa	ISO 527-1/-2
Stress at break, 5mm/min	90	MPa	ISO 527-1/-2
Strain at break, 5mm/min	2	%	ISO 527-1/-2
Flexural Modulus	8800	MPa	ISO 178
Flexural Strength	145	MPa	ISO 178
Charpy impact strength, 23°C	35	kJ/m²	ISO 179/1eU
Poisson's ratio	0.34		

Thermal properties

Melting temperature, 10°C/min	250	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	216	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C	20	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel	29	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160°C	24	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	46	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	79	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	93	E-6/K	ISO 11359-1/-2

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Flammability

Burning Behav. at thickness h	HB	class	UL 94
Thickness tested	0.75	mm	UL 94
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<80	mm/min	ISO 3795 (FMVSS 302)

Electrical properties

Volume resistivity	>1E13	Ohm.m	IEC 62631-3-1
Surface resistivity	>1E15	Ohm	IEC 62631-3-2
Electric strength	50	kV/mm	IEC 60243-1

Other properties

Density	1600	kg/m³	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	285	°C	Internal
Min. melt temperature	280	°C	
Max. melt temperature	300	°C	
Screw tangential speed	≤0.2	m/s	
Mold Temperature Optimum	110	°C	
Min. mould temperature	100	°C	
Max. mould temperature	120[2]	°C	
Hold pressure range	≥80	MPa	
Hold pressure time	4	s/mm	
Back pressure	As low as possible	MPa	
Ejection temperature	170	°C	Internal

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

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