

Rynite® 815ER NC010

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® 815ER NC010 is a 15% Glass Reinforced, Toughened, Polyethylene Terephthalate Developed for Encapsulation Applications.

Product information

Resin Identification	PET-IGF15	ISO 1043
Part Marking Code	>PET-IGF15<	ISO 11469

Rheological properties

Moulding shrinkage, parallel	0.3 %	ISO 294-4, 2577
Moulding shrinkage, normal	0.8 %	ISO 294-4, 2577
Moulding shrinkage, parallel, annealed	0.5 %	ISO 294-4
Moulding shrinkage, normal, annealed	1.2 %	ISO 294-4

Typical mechanical properties

Tensile Modulus	4700 MPa	ISO 527-1/-2
Stress at break, 5mm/min	79 MPa	ISO 527-1/-2
Strain at break, 5mm/min	5 %	ISO 527-1/-2
Flexural Modulus	3550 MPa	ISO 178
Charpy impact strength, 23°C	55 kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	25 kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	11 kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	8 kJ/m ²	ISO 179/1eA
Izod notched impact strength, 23°C	13 kJ/m ²	ISO 180/1A
Izod notched impact strength, -30°C	7.7 kJ/m ²	ISO 180/1A
Hardness, Rockwell, M-scale	58	ISO 2039-2
Hardness, Rockwell, R-scale	111	ISO 2039-2
Poisson's ratio	0.36	

Thermal properties

Melting temperature, 10°C/min	250 °C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	207 °C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	235 °C	ISO 75-1/-2
Vicat softening temperature, 50°C/h, 50N	205 °C	ISO 306
Coeff. of linear therm. expansion, parallel, -40-23°C	98 E-6/K	ISO 11359-1/-2



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Coeff. of linear therm. expansion, parallel	20 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160°C	109 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	40 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	120 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	32 E-6/K	ISO 11359-1/-2
Eff. thermal diffusivity	9E-8 m²/s	Internal
RTI, electrical, 0.75mm	140 °C	UL 746B
RTI, electrical, 1.5mm	140 °C	UL 746B
RTI, electrical, 3mm	140 °C	UL 746B
RTI, impact, 0.75mm	120 °C	UL 746B
RTI, impact, 1.5mm	120 °C	UL 746B
RTI, impact, 3mm	120 °C	UL 746B
RTI, strength, 0.75mm	140 °C	UL 746B
RTI, strength, 1.5mm	140 °C	UL 746B
RTI, strength, 3mm	140 °C	UL 746B

Flammability

Burning Behav. at 1.5mm nom. thickn.	HB class	UL 94
Thickness tested	1.5 mm	UL 94
UL recognition	yes	UL 94
Burning Behav. at thickness h	HB class	UL 94
Thickness tested	0.75 mm	UL 94
UL recognition	yes	UL 94
Oxygen index	19 %	ISO 4589-1/-2
Glow Wire Flammability Index, 0.75mm	675 °C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5mm	675 °C	IEC 60695-2-12
Glow Wire Flammability Index, 3mm	750 °C	IEC 60695-2-12
Glow Wire Ignition Temperature, 0.75mm	700 °C	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.5mm	700 °C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3mm	775 °C	IEC 60695-2-13
FMVSS Class	B	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	36 mm/min	ISO 3795 (FMVSS 302)

Electrical properties

Relative permittivity, 100Hz	4.5	IEC 62631-2-1
Relative permittivity, 1MHz	3.9	IEC 62631-2-1
Dissipation factor, 100Hz	654 E-4	IEC 62631-2-1
Dissipation factor, 1MHz	236 E-4	IEC 62631-2-1
Volume resistivity	1E11 Ohm.m	IEC 62631-3-1
Surface resistivity	1E13 Ohm	IEC 62631-3-2
Electric strength	38 kV/mm	IEC 60243-1
Comparative tracking index	350	IEC 60112



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Comparative tracking index

2 PLC

UL 746A

Other properties

Humidity absorption, 2mm

0.25 %

Sim. to ISO 62

Water absorption, 2mm

2.5 %

Sim. to ISO 62

Density

1390 kg/m³

ISO 1183

Injection

Drying Recommended

yes

Drying Temperature

120 °C

Drying Time, Dehumidified Dryer

4 - 6 h

Processing Moisture Content

≤0.02^[1] %

Melt Temperature Optimum

285 °C

Internal

Min. melt temperature

270 °C

Max. melt temperature

290 °C

Screw tangential speed

≤0.2 m/s

Mold Temperature Optimum

95 °C

Min. mould temperature

75 °C

Max. mould temperature

95 °C

Hold pressure range

≥80 MPa

Hold pressure time

4 s/mm

Back pressure

As low as MPa

possible

Ejection temperature

170 °C

Internal

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

Characteristics

Additives

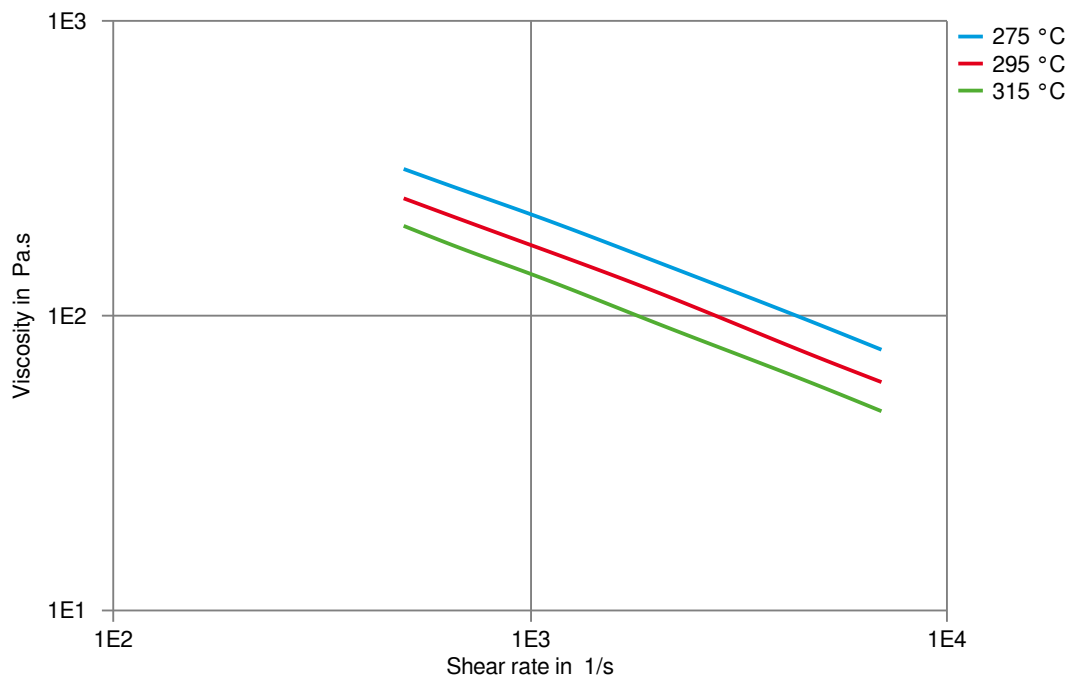
Release agent



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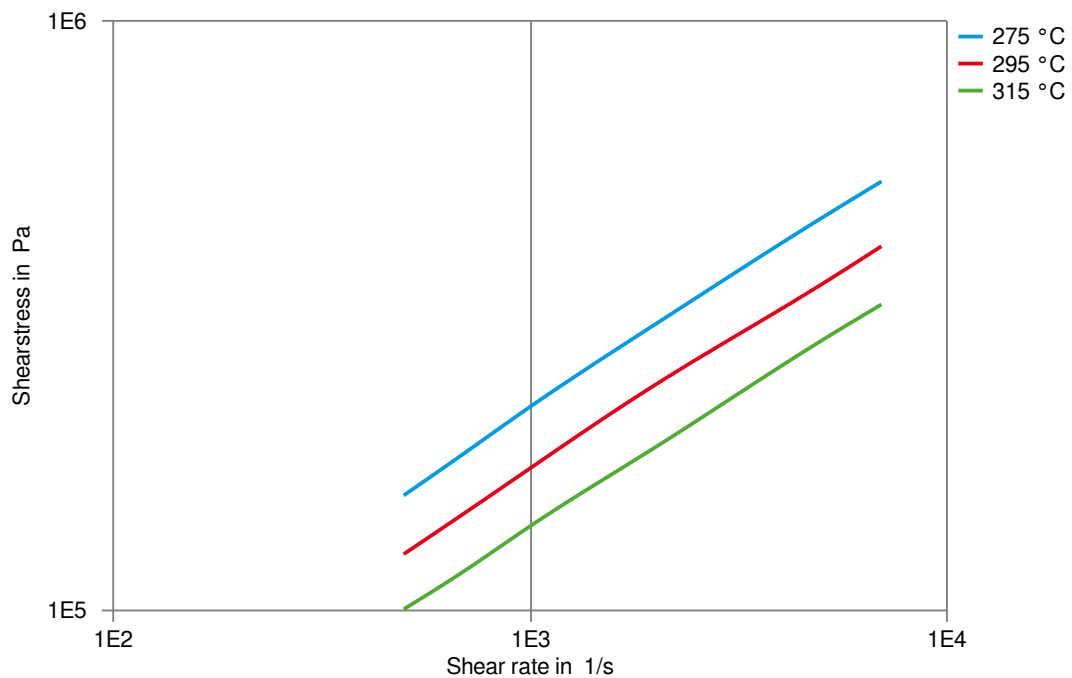
Viscosity-shear rate



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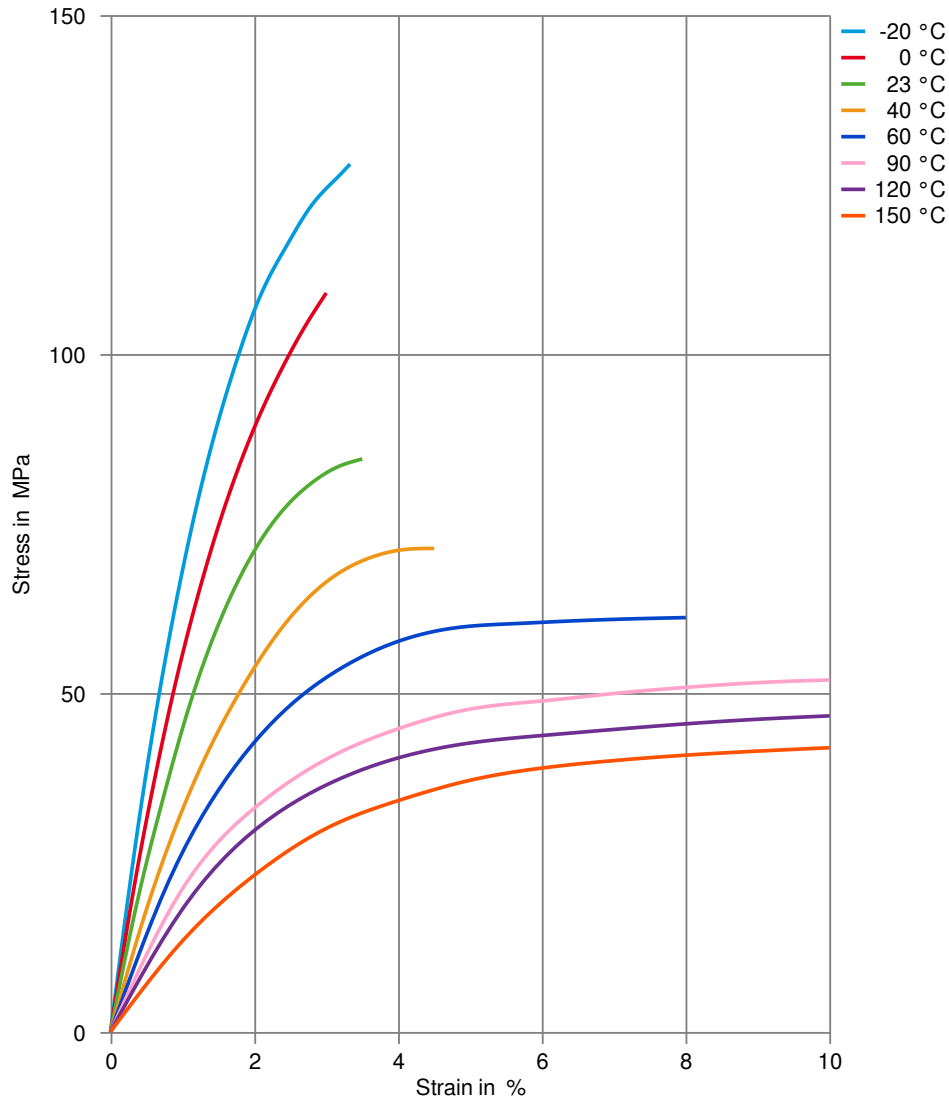
Shearstress-shear rate



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Stress-strain



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Secant modulus-strain

