

DUPONT™ RYNITE® PET POLYESTER RESIN PRODUCT REFERENCE GUIDE

DuPont™ Rynite® PET thermoplastic polyester resins are among the strongest and stiffest engineering resins available. They are a prime candidate for the replacement of die-cast metals and thermosets in many demanding applications where stiffness, critical tolerances, and dielectric properties are key requirements. With extensive UL listings and excellent flow characteristics, Rynite® can be used in many encapsulation and thin wall electrical and electronic applications, especially where high temperature index and UV resistance are required.

PERFORMANCE ADVANTAGES RYNITE® PET VERSUS ALTERNATIVE MATERIALS

Versus PBT, Rynite® PET excels with higher

- Strength and stiffness
- Temperature properties
- Thermal endurance
- Flow in thin sections

Versus thermosets, Rynite® PET excels with

- Greater design flexibility
- Lighter weight
- Dielectric properties
- Lower processing cost
 - Faster cycles
 - Recycle
 - Lower scrap rates
 - No deflashing

Versus nylon, Rynite® PET excels with greater

- Dimensional stability
- Stiffness
- Thermal endurance
- Property retention with moisture
- Surface gloss

Versus PPA, Rynite® PET excels with higher

- UL relative temperature index rating
- Surface gloss
- Color stability at elevated temperature

Versus metals, Rynite® PET excels with

- Greater design flexibility
- Lighter weight
- Corrosion resistance

Table 1.1: Rynite® General Purpose Grades

Glass Reinforced	30% glass fiber 45% glass fiber	Rynite® 530 Rynite® 545
Impact Modified	15% glass fiber 30% glass fiber	Rynite® 415HP Rynite® 408
Low Warp	35% glass/mica 40% glass/mica	Rynite® 935 Rynite® 940
Flame Retardant	15% glass fiber 30% glass fiber 43% glass fiber	Rynite® FR515 Rynite® FR530 Rynite® FR543

Table 1.2: Rynite® Specialty Grades

Encapsulation	15% glass fiber	Rynite® 815ER
UV Resistant + Hydrolysis Resistance	35% glass/mica 40% glass fiber	Rynite® 935SUV Rynite® HR540SUV
Electrical - High Temperature	30% glass fiber 50% glass fiber	Rynite® 530HTE Rynite® 550HTE
Ignition Systems	36% glass fiber/flake	Rynite® RE5329
Food Contact Grade	30% glass fiber	Rynite® FG530 NC011

Many other grades are available by region. Please connect with DuPont for your specialized needs.



From switches to solenoid, DuPont™ Rynite® helps customers meet electrical insulation standards (EIS). Rynite® FG is used in hybrid packaging with paperboard for oven-ready meals.

PROCESSING RYNITE® PET

DRYING CONSIDERATIONS

To mold parts with excellent strength and toughness, dehumidified drying is recommended.

Drying Conditions for Rynite® PET Resins

Inlet Hopper	
Air temperature	110 – 135 °C (225 – 275 °F)
Dew point of air	-20 °C (0 °F) or lower
Air flow rate	3.0 – 3.7 m ³ /hr per kg/hr resin processed (0.8 – 1.0 CFM per lb/hr)

Inlet Desiccant Bed

Air Temperature 65 °C (150 °F) or lower

Drying Time (hr) at	110°C (225°F)	120°C (250°F)	135°C (275°F)
Virgin Resin	8	3	2
Recycled regrind	8	4	3
Wet resin	8	6	4
Maximum	16	9	6

Moisture Control is Essential for Quality Parts

At levels above 0.02%, strength and toughness will decrease, even though parts molded from wet resin will not exhibit surface defects.

MELT TEMPERATURE

Resin Series		Cylinder Settings				Preferred Melt Temperature
		Rear	Center	Front	Nozzle	
500, 900	°C	260-290	260-295	265-295	275-300	280-300
	°F	500-550	500-560	510-560	530-570	540-570
400, 800, FR	°C	260-275	260-280	260-280	260-290	270-290
	°F	500-530	500-540	500-540	500-560	520-550

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MOLD TEMPERATURE

To obtain maximum dimensional stability, surface appearance, and cycle, the optimum mold temperature depends upon part thickness.

Part Thickness mm (in)	Preferred Minimum Mold Temperature °C (°F)
0.75 (0.030)	110 (230)
1.5 (0.060)	105 (220)
3 (0.125)	100 (210)
6 (0.250)	90 (190)

Additional Considerations

When mold temperatures below 90 °C (190 °F) are used, the initial warpage and shrinkage will be lower, but the surface appearance will be poorer and the dimensional change will be greater when parts are heated above 90 °C (190 °F).

For 415HP and 815ER grades: subtract 15 °C (25°F).

For HTE and RE5329 grades: add 30 °C (55 °F).

For more detailed processing recommendations, see the **Rynite® Molding Guide**.

The information provided in this guide corresponds to DuPont knowledge on the subject at the date of its publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relate only to the specific material designated; these data may not be valid for such material used in combination with any other materials, additives or pigments or in any process, unless expressly indicated otherwise.

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