

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 m3/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 |

Visit us at plastics.dupont.com or rynite.dupont.com

Contact DuPont at the following regional locations:

North America
+1-302-999-4592

Latin America
+0800 17 17 15

Europe, Middle East, Africa
+41 22 717 51 11

Greater China
+86-400-8851-888

Japan
+81-3-5521-8600

ASEAN
+65 6586 3688

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.

The data provided should not be used to establish specification limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to conduct to determine for yourself the suitability of a specific material for your particular purposes. Since DuPont cannot anticipate all variations in actual end-use and disposal conditions, DuPont does not guarantee results, makes no warranties and assumes no liability in connection with any use of this information. All such information is given and accepted at the buyer's risk. It is intended for use by persons having technical skill, at their own discretion and risk. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent.

CAUTION: Do not use DuPont materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless the material has been provided from DuPont under a written contract that is consistent with DuPont policy regarding medical applications and expressly acknowledges the contemplated use. For further information, please contact your DuPont representative. You may also request a copy of DuPont POLICY Regarding Medical Applications H-50103-5 and DuPont CAUTION Regarding Medical Applications H-50102-5. Copyright ©2016 DuPont. The DuPont Oval Logo, DuPont™ and Rynite® are trademarks or registered trademarks of E.I. du Pont de Nemours and Company or its affiliates. All rights reserved. (10/16) Reference number RNE-A11214-00-B1016

