



# Rynite® 940 BK505

## 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® 940 BK505 is a 40% mica/glass reinforced modified polyethylene terephthalate resin with low warpage, high stiffness and strength, and excellent electrical properties.

### Product information

|                      |                 |           |
|----------------------|-----------------|-----------|
| Resin Identification | PET-(GF+MD)40   | ISO 1043  |
| Part Marking Code    | >PET-(GF+MD)40< | ISO 11469 |

### Rheological properties

|                              |       |                 |
|------------------------------|-------|-----------------|
| Moulding shrinkage, parallel | 0.2 % | ISO 294-4, 2577 |
| Moulding shrinkage, normal   | 0.7 % | ISO 294-4, 2577 |

### Typical mechanical properties

|                                       |                      |              |
|---------------------------------------|----------------------|--------------|
| Tensile Modulus                       | 12500 MPa            | ISO 527-1/-2 |
| Stress at break                       | 110 MPa              | ISO 527-1/-2 |
| Strain at break                       | 1.8 %                | ISO 527-1/-2 |
| Flexural Modulus                      | 13000 MPa            | ISO 178      |
| Charpy impact strength, 23°C          | 35 kJ/m <sup>2</sup> | ISO 179/1eU  |
| Charpy impact strength, -40°C         | 35 kJ/m <sup>2</sup> | ISO 179/1eU  |
| Charpy notched impact strength, 23°C  | 7 kJ/m <sup>2</sup>  | ISO 179/1eA  |
| Charpy notched impact strength, -40°C | 6 kJ/m <sup>2</sup>  | ISO 179/1eA  |
| Poisson's ratio                       | 0.33 -               |              |

### Thermal properties

|   |          |                |
|---|----------|----------------|
| Melting temperature, 10°C/min                       | 250 °C   | ISO 11357-1/-3 |
| Temp. of deflection under load, 1.8 MPa             | 220 °C   | ISO 75-1/-2    |
| Temp. of deflection under load, 0.45 MPa            | 241 °C   | ISO 75-1/-2    |
| CLTE, Parallel, -40-23°C                            | 22 E-6/K | ISO 11359-1/-2 |
| Coeff. of linear therm. expansion, parallel         | 15 E-6/K | ISO 11359-1/-2 |
| CLTE, Parallel, 55-160°C                            | 6 E-6/K  | ISO 11359-1/-2 |
| CLTE, Normal, -40-23°C                              | 54 E-6/K | ISO 11359-1/-2 |
| Coeff. of linear therm. expansion, normal           | 60 E-6/K | ISO 11359-1/-2 |
| Coeff. of linear therm. expansion, Normal, 55-160°C | 84 E-6/K | ISO 11359-1/-2 |
| RTI, electrical, 0.75mm                             | 75 °C    | UL 746B        |



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|                       |       |         |
|-----------------------|-------|---------|
| RTI, impact, 0.75mm   | 75 °C | UL 746B |
| RTI, strength, 0.75mm | 75 °C | UL 746B |

### Flammability

|                                     |            |                      |
|-------------------------------------|------------|----------------------|
| Burning Behav. at thickness h       | HB class   | IEC 60695-11-10      |
| Thickness tested                    | 0.75 mm    | IEC 60695-11-10      |
| UL recognition                      | yes -      | UL 94                |
| Glow Wire Flammability Index, 3mm   | 925 °C     | IEC 60695-2-12       |
| Glow Wire Ignition Temperature, 3mm | 900 °C     | IEC 60695-2-13       |
| FMVSS Class                         | B -        | ISO 3795 (FMVSS 302) |
| Burning rate, Thickness 1 mm        | <80 mm/min | ISO 3795 (FMVSS 302) |

### Electrical properties

|                              |            |               |
|------------------------------|------------|---------------|
| Relative permittivity, 100Hz | 4.2 -      | IEC 62631-2-1 |
| Relative permittivity, 1MHz  | 3.9 -      | IEC 62631-2-1 |
| Dissipation factor, 100Hz    | 70 E-4     | IEC 62631-2-1 |
| Dissipation factor, 1MHz     | 146 E-4    | IEC 62631-2-1 |
| Volume resistivity           | 1E13 Ohm.m | IEC 62631-3-1 |
| Surface resistivity          | 1E14 Ohm   | IEC 62631-3-2 |
| Electric strength            | 33 kV/mm   | IEC 60243-1   |
| Comparative tracking index   | 250 -      | IEC 60112     |

### Other properties

|         |                        |          |
|---------|------------------------|----------|
| Density | 1640 kg/m <sup>3</sup> | ISO 1183 |
|---------|------------------------|----------|

### Injection

|                                 |                        |
|---------------------------------|------------------------|
| Drying Recommended              | yes                    |
| Drying Temperature              | 120 °C                 |
| Drying Time, Dehumidified Dryer | 4 - 6 h                |
| Processing Moisture Content     | ≤0.02 <sup>[1]</sup> % |
| Melt Temperature Optimum        | 285 °C                 |
| Min. melt temperature           | 280 °C                 |
| Max. melt temperature           | 300 °C                 |
| Max. screw tangential speed     | 0.2 m/s                |
| Mold Temperature Optimum        | 110 °C                 |
| Min. mould temperature          | 100 °C                 |
| Max. mould temperature          | 120 <sup>[2]</sup> °C  |
| Hold pressure range             | ≥80 MPa                |
| Hold pressure time              | 4 s/mm                 |
| Back pressure                   | As low as possible MPa |
| Ejection temperature            | 170 °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

Additives

Release agent

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