

## Technical Information



# LUPOY PC UF1004CI

Polycarbonate Resin

## Introduction

LUPOY PC UF1004CI resin is designed for Light guide panel application. It exhibits an excellent flow-ability, thermal resistance and good Optical properties.

## Main Characteristics

- Very low viscosity
- Good optical properties
- Thermal stability

## Applications

- Light guide panel

| Properties <sup>1</sup>                                                       | Test Method | English Value         | Units    | SI Value              | Units             |
|-------------------------------------------------------------------------------|-------------|-----------------------|----------|-----------------------|-------------------|
| <b>Physical</b>                                                               |             |                       |          |                       |                   |
| Melt Flow Rate (300 °C /1.2 kg)                                               | ASTM D 1238 | 70                    | g/10 min | 70                    | g/10 min          |
| Melt Flow Rate (250 °C /1.2 kg)                                               | ASTM D 1238 | 10                    | g/10 min | 10                    | g/10 min          |
| Density                                                                       | ASTM D 792  | 1.20                  |          | 1.200                 | kg/m <sup>3</sup> |
| Mold Shrinkage                                                                | ASTM D 955  | 0.005~0.007           | in/in    | 0.005~0.007           | mm/mm             |
| Water Absorption @ 24 hrs, 23°C                                               | ASTM D 570  | 0.15                  | %        | 0.15                  | %                 |
| @ equilibrium, 50%RH, 23°C                                                    | ASTM D 570  | 0.32                  | %        | 0.32                  | %                 |
| <b>Optical</b>                                                                |             |                       |          |                       |                   |
| Refractive Index, n <sub>D</sub>                                              | ASTM D 542  | 1.583                 |          | 1.583                 |                   |
| Light Transmittance                                                           | ASTM D 1003 | 91                    | %        | 91                    | %                 |
| Haze                                                                          | ASTM D 1003 | 0.1~1.0               | %        | 0.1~1.0               | %                 |
| <b>Thermal</b>                                                                |             |                       |          |                       |                   |
| Deflection Temperature Under Load (DTUL) @ 4 mm @ 66 psi (0.45 MPa), annealed | ASTM D 648  | 275                   | °F       | 135                   | °C                |
| @ 264 psi (1.80 MPa), annealed                                                |             | 255                   | °F       | 124                   | °C                |
| Vicat Softening Point, 50°C /hr, 50N Load                                     | ASTM D 1525 | 284                   | °F       | 140                   | °C                |
| Coefficient of Linear Thermal Expansion, @ -40 to 82°C                        | ASTM D 696  | 38 x 10 <sup>-6</sup> | in/in/°F | 68 x 10 <sup>-6</sup> | mm/mm/°C          |
| <b>Mechanical</b>                                                             |             |                       |          |                       |                   |
| Tensile Yield Strength <sup>2</sup>                                           | ASTM D 638  | 8,700                 | psi      | 60                    | MPa               |
| Ultimate Tensile Strength                                                     | ASTM D 638  | 7,000                 | psi      | 48                    | MPa               |
| Elongation at Yield                                                           | ASTM D 638  | 6                     | %        | 6                     | %                 |
| Elongation at Break                                                           | ASTM D 638  | 90                    | %        | 90                    | %                 |
| Tensile Modulus                                                               | ASTM D 638  | 260,000               | psi      | 1,800                 | MPa               |
| Flexural Strength                                                             | ASTM D 790  | 14,500                | psi      | 100                   | MPa               |
| Flexural Modulus                                                              | ASTM D 790  | 319,000               | psi      | 2,200                 | MPa               |
| Notched Izod Impact <sup>3</sup> @ 23 °C                                      | ASTM D 256  | 9                     | ft-lb/in | 500                   | J/m               |
| Instrumented Dart Impact <sup>4</sup> , Total Energy @ 23 °C                  | ASTM D 3763 | 520                   | in-lb    | 59                    | J                 |
| Rockwell Hardness                                                             | ASTM D 785  | 124                   | R Scale  | 58                    | M Scale           |
| <b>Ignition Resistance<sup>5</sup></b>                                        |             |                       |          |                       |                   |
| UL-94 @ 0.4 mm                                                                | ASTM D635   | V-2                   |          | V-2                   |                   |
| UL-94 @ 1.5 mm                                                                | ASTM D635   | V-2                   |          | V-2                   |                   |
| UL-94 @ 3.0 mm                                                                | ASTM D635   | V-2                   |          | V-2                   |                   |

1. Typical properties; not to be constructed as specifications

2. Tensile Test @ 23°C; 50 mm/min.

3. 0.125 in; 10 mil notch (3.2 mm; 0.25 mm notch).

4. 0.125 in; 8000 ipm (3.2 mm; 203 m/min).

5. These numerical flame spread ratings are small-scale test values and are not intended to reflect hazards presented by these or any other materials under actual fire conditions. UL 94 file: E67171.