

## LUPOY PC 1201-10

Polycarbonate Resin

### Introduction

LUPOY PC 1201-10 resin is designed for extrusion and injection molding products. It exhibits an excellent physical property balance of heat resistance, transparency and impact strength.

### Main Characteristics

- FDA<sup>1</sup>
- Medium viscosity

- Good mold release

### Applications

- Toys
- Food utensils

- Packaging applications

| Properties <sup>2</sup>                                                          | Test Method | English Value          | Units    | SI Value               | Units             |
|----------------------------------------------------------------------------------|-------------|------------------------|----------|------------------------|-------------------|
| <b>Physical</b>                                                                  |             |                        |          |                        |                   |
| Melt Flow Rate (300 °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  | 1.586                  |          | 1.586                  |                   |
| Light Transmittance                                                              | ASTM D 1003 | 89                     | %        | 89                     | %                 |
| Haze                                                                             | ASTM D 1003 | 0.7~1.5                | %        | 0.7~1.5                | %                 |
| <b>Thermal</b>                                                                   |             |                        |          |                        |                   |
| Deflection Temperature Under Load (DTUL) @ 4 mm<br>@ 66 psi (0.45 MPa), annealed | ASTM D 648  | 291                    | °F       | 144                    | °C                |
| @ 264 psi (1.8 MPa), annealed                                                    |             | 286                    | °F       | 141                    | °C                |
| @ 264 psi (1.8 MPa), unannealed                                                  |             | 262                    | °F       | 128                    | °C                |
| Vicat Softening Point, 50°C/hr, 50N Load                                         | ASTM D 1525 | 300                    | °F       | 149                    | °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>3</sup>                                              | ASTM D 638  | 8,700                  | psi      | 60                     | MPa               |
| Ultimate Tensile Strength                                                        | ASTM D 638  | 10,300                 | psi      | 71                     | MPa               |
| Elongation at Yield                                                              | ASTM D 638  | 6                      | %        | 6                      | %                 |
| Elongation at Break                                                              | ASTM D 638  | 150                    | %        | 150                    | %                 |
| Tensile Modulus                                                                  | ASTM D 638  | 350,000                | psi      | 2,410                  | MPa               |
| Flexural Strength                                                                | ASTM D 790  | 14,000                 | psi      | 96                     | MPa               |
| Flexural Modulus                                                                 | ASTM D 790  | 350,000                | psi      | 2,410                  | MPa               |
| Notched Izod Impact <sup>4</sup> @ 23 °C                                         | ASTM D 256  | 17                     | ft-lb/in | 900                    | J/m               |
| Unnotched Izod Impact @ 23 °C                                                    | ASTM D 256  | No break               |          | No break               |                   |
| Instrumented Dart Impact <sup>5</sup> , Total Energy @ 23 °C                     | ASTM D 3763 | 770                    | in-lb    | 87                     | J                 |
| Rockwell Hardness                                                                | ASTM D 785  | 118                    | R Scale  | 73                     | M Scale           |
| Taber Abrasion Resistance <sup>6</sup> (Δ Haze)                                  | ASTM D 1044 | 45                     | %        | 45                     | %                 |
| <b>Ignition Resistance<sup>7</sup></b>                                           |             |                        |          |                        |                   |
| UL-94 @ 0.5 mm                                                                   | ASTM D635   | V-2                    |          | V-2                    |                   |
| UL-94 @ 1.6 mm                                                                   | ASTM D635   | V-2                    |          | V-2                    |                   |
| UL-94 @ 2.5-2.7 mm                                                               | ASTM D635   | V-2                    |          | V-2                    |                   |
| UL-94 @ 3.0 mm                                                                   | ASTM D635   | HB                     |          | HB                     |                   |
| Limiting Oxygen Index                                                            | ASTM D 2863 | 26                     | %        | 26                     | %                 |
| Ball Indentation Temperature                                                     | IEC 598-1   | >125                   | °C       | >125                   | °C                |
| Average Extent of Burning                                                        | ASTM D 635  | 1                      | in       | 25                     | mm                |
| <b>Electrical</b>                                                                |             |                        |          |                        |                   |
| GWT 2.0 mm, 5 second                                                             | IEC 695-2-1 | 850                    | °C       | 850                    | °C                |
| Comparative Tracking Index @ 2.0 mm                                              | IEC 112     | 250                    | V        | 250                    | V                 |
| Dielectric Strength                                                              | ASTM D 149  | 420                    | V/mil    | 17                     | KV/mm             |
| Dielectric Constant @ 60 Hz                                                      | ASTM D 150  | 3                      |          | 3                      |                   |
| Dissipation Factor @ 60 Hz                                                       | ASTM D 150  | 0.001                  |          | 0.001                  |                   |
| Volume Resistivity @ 23 °C, dry                                                  | ASTM D 257  | 2.0 x 10 <sup>17</sup> | Ω-cm     | 2.0 x 10 <sup>17</sup> | Ω-cm              |

1. When used unmodified for the manufacture of food contact articles LUPOY 1201-10 Polycarbonate resins comply with the U.S. Food, Drug, and Cosmetic Act and Food Additive Regulations 21 CFR 177.1580 and E.U. Food Contact Regulations. The uses cited above are subject to GMP (Good Manufacturing Practices) and any limitations that are part of the regulations. The regulations should be consulted for complete details.

2. Typical properties; not to be constructed as specifications.

3. Tensile Test @ 23 °C; 50 mm/min.

4. 0.125 in; 10 mil notch (3.2 mm; 0.25 mm notch).

5. 0.125 in; 8000 ipm (3.2 mm; 203 m/min).

6. 1,000 g; CS-10 F wheel; 500 cycles.

7. 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.