

## Technical Information



# LUPOY PC 1303AH-18

## Polycarbonate Resin

### Introduction

LUPOY PC 1303AH-18 Tint Polycarbonate Resin is designed for injection molding of auto-headlamps. It exhibits an excellent physical property balance of heat resistance, transparency and impact strength.

### Main Characteristics

- UV stabilizer<sup>1</sup>
- Low viscosity
- Good mold release
- Listed on AMECA

### Applications

- Outdoor applications
- Automotive headlamps

| Properties <sup>2</sup>                                                       | Test Method | English Value          | English Units | SI Value               | SI Units          |
|-------------------------------------------------------------------------------|-------------|------------------------|---------------|------------------------|-------------------|
| <b>Physical</b>                                                               |             |                        |               |                        |                   |
| Melt Flow Rate (300 °C /1.2 kg)                                               | ASTM D 1238 | 18                     | g/10 min      | 18                     | 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 @ 66 psi (0.45 MPa), annealed | ASTM D 648  | 289                    | °F            | 143                    | °C                |
| @ 264 psi (1.8 MPa), annealed                                                 |             | 284                    | °F            | 140                    | °C                |
| @ 264 psi (1.8 MPa), unannealed                                               |             | 260                    | °F            | 127                    | °C                |
| Vicat Softening Point, 50°C /hr, 50N Load                                     | ASTM D 1525 | 298                    | °F            | 148                    | °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                                                        | ASTM D 638  | 8,700                  | psi           | 60                     | MPa               |
| Ultimate Tensile Strength                                                     | ASTM D 638  | 9,900                  | psi           | 69                     | MPa               |
| Elongation at Yield                                                           | ASTM D 638  | 6                      | %             | 6                      | %                 |
| Elongation at Break                                                           | ASTM D 638  | 140                    | %             | 140                    | %                 |
| Tensile Modulus                                                               | ASTM D 638  | 340,000                | psi           | 2,340                  | 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>3</sup> @ 23 °C                                      | ASTM D 256  | 15                     | ft-lb/in      | 800                    | J/m               |
| Unnotched Izod Impact @ 23 °C                                                 | ASTM D 256  | No break               |               | No break               |                   |
| Instrumented Dart Impact <sup>4</sup> , Total Energy @ 23 °C                  | ASTM D 3763 | 700                    | in-lb         | 80                     | J                 |
| Rockwell Hardness                                                             | ASTM D 785  | 118                    | R Scale       | 72                     | M Scale           |
| Taber Abrasion Resistance <sup>5</sup> (Δ Haze)                               | ASTM D 1044 | 45                     | %             | 45                     | %                 |
| <b>Ignition Resistance<sup>6</sup></b>                                        |             |                        |               |                        |                   |
| UL-94 @ 1.5 mm                                                                | ASTM D635   | HB                     |               | HB                     |                   |
| 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                |
| Compression 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.The addition of an UV stabilizer to a resin does not completely eliminate the effects of UV exposure but to slow down the rate at which the effects occur. These effects may include color shift, decreased mechanical properties, and/or optical properties. Actual results may vary depending on application and other factors such as resin color, transparency and additives. Therefore, actual end-use testing is recommended

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

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

6. 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.