

## Technical Information



# CALIBRE™ 301-22

## Polycarbonate Resin

### Overview

CALIBRE™ 301-22 Polycarbonate is a high flow injection moulding resin that offers exceptional impact resistance, heat distortion resistance and optical clarity. The high melt flow rate allows complex parts to be easily molded. CALIBRE 301-22 contains mold release and no UV stabilizer.

Govt. and Industry Standards:

- Underwriters Laboratory, Inc. (UL)

Applications:

- Appliances
- Storage
- Electrical & electronics components
- Lighting components

| Physical                                 | Nominal Value (English) | Nominal Value (SI)     | Test Method             |
|------------------------------------------|-------------------------|------------------------|-------------------------|
| Density                                  | 1.20 g/cm <sup>3</sup>  | 1.20 g/cm <sup>3</sup> | ASTM D792<br>ISO 1183/B |
| Melt Mass-Flow Rate (MFR) (300°C/1.2 kg) | 22 g/10 min             | 22 g/10 min            | ASTM D1238<br>ISO 1133  |
| Molding Shrinkage - Flow                 | 5.0E-3 to 7.0E-3 in/in  | 0.50 to 0.70 %         | ISO 294-4               |
| Water Absorption                         |                         |                        | ISO 62                  |
| Saturation, 73°F (23°C)                  | 0.32 %                  | 0.32 %                 |                         |
| Equilibrium, 73°F (23°C), 50% RH         | 0.12 %                  | 0.12 %                 |                         |
| Mechanical                               | Nominal Value (English) | Nominal Value (SI)     | Test Method             |
| Tensile Modulus                          |                         |                        |                         |
| -- <sup>1</sup>                          | 334000 psi              | 2300 MPa               | ASTM D638               |
| --                                       | 334000 psi              | 2300 MPa               | ISO 527-1/1             |
| Tensile Strength                         |                         |                        |                         |
| Yield <sup>2</sup>                       | 8700 psi                | 60.0 MPa               | ASTM D638               |
| Yield                                    | 8700 psi                | 60.0 MPa               | ISO 527-2/50            |
| Break <sup>2</sup>                       | 9430 psi                | 65.0 MPa               | ASTM D638               |
| Break                                    | 9430 psi                | 65.0 MPa               | ISO 527-2/50            |
| Tensile Elongation                       |                         |                        |                         |
| Yield <sup>2</sup>                       | 6.0 %                   | 6.0 %                  | ASTM D638               |
| Yield                                    | 6.0 %                   | 6.0 %                  | ISO 527-2/50            |
| Break <sup>2</sup>                       | 120 %                   | 120 %                  | ASTM D638               |
| Break                                    | 120 %                   | 120 %                  | ISO 527-2/50            |
| Flexural Modulus                         |                         |                        |                         |
| --                                       | 350000 psi              | 2410 MPa               | ASTM D790               |
| -- <sup>3</sup>                          | 348000 psi              | 2400 MPa               | ISO 178                 |
| Flexural Strength                        |                         |                        |                         |
| --                                       | 14000 psi               | 96.5 MPa               | ASTM D790               |
| -- <sup>3</sup>                          | 14100 psi               | 97.0 MPa               | ISO 178                 |

| Impact                                    | Nominal Value (English)   | Nominal Value (SI)   | Test Method                            |
|-------------------------------------------|---------------------------|----------------------|----------------------------------------|
| Charpy Notched Impact Strength            |                           |                      | ISO 179/1eA                            |
| -22°F (-30°C)                             | 5.2 ft-lb/in <sup>2</sup> | 11 kJ/m <sup>2</sup> |                                        |
| 73°F (23°C)                               | 9.5 ft-lb/in <sup>2</sup> | 20 kJ/m <sup>2</sup> |                                        |
| Notched Izod Impact                       |                           |                      |                                        |
| 73°F (23°C)                               | 14 ft-lb/in               | 750 J/m              | ASTM D256                              |
| 73°F (23°C)                               | 35 ft-lb/in <sup>2</sup>  | 74 kJ/m <sup>2</sup> | ISO 180/A                              |
| Thermal                                   | Nominal Value (English)   | Nominal Value (SI)   | Test Method                            |
| Deflection Temperature Under Load         |                           |                      |                                        |
| 66 psi (0.45 MPa), Annealed               | 288 °F                    | 142 °C               | ASTM D648<br>ISO 75-2/B                |
| 264 psi (1.8 MPa), Unannealed             | 259 °F                    | 126 °C               | ASTM D648                              |
| 264 psi (1.8 MPa), Unannealed             | 252 °F                    | 122 °C               | ISO 75-2/A                             |
| 264 psi (1.8 MPa), Annealed               | 282 °F                    | 139 °C               | ASTM D648<br>ISO 75-2/A                |
| Vicat Softening Temperature               | 297 °F                    | 147 °C               | ISO 306/B50<br>ASTM D1525 <sup>4</sup> |
| CLTE - Flow (-40 to 176°F (-40 to 80°C))  | 3.8E-5 in/in/°F           | 6.9E-5 cm/cm/°C      | ISO 11359-2                            |
| Flammability                              | Nominal Value (English)   | Nominal Value (SI)   | Test Method                            |
| Flame Rating <sup>5</sup>                 |                           |                      | UL 94                                  |
| 0.12 in (3.0 mm)                          | HB                        | HB                   |                                        |
| 0.030 in (0.75 mm)                        | V-2                       | V-2                  |                                        |
| 0.06 in (1.5 mm)                          | V-2                       | V-2                  |                                        |
| Oxygen Index <sup>5</sup>                 | 26 %                      | 26 %                 | ISO 4589-2                             |
| Optical                                   | Nominal Value (English)   | Nominal Value (SI)   | Test Method                            |
| Refractive Index                          | 1.586                     | 1.586                | ISO 489                                |
| Light Transmittance (118.1 mil (3000 µm)) | 87.0 to 91.0 %            | 87.0 to 91.0 %       | ASTM D1003                             |
| Haze                                      | < 1.00 %                  | < 1.00 %             | ASTM D1003                             |
| Injection                                 | Nominal Value (English)   | Nominal Value (SI)   |                                        |
| Drying Temperature                        | 248 °F                    | 120 °C               |                                        |
| Drying Time                               | 4.0 hr                    | 4.0 hr               |                                        |

#### Notes

These are typical properties only and are not to be construed as specifications. Users should confirm results by their own tests.

<sup>1</sup> 0.039 in/min (1.0 mm/min)

<sup>2</sup> 2.0 in/min (50 mm/min)

<sup>3</sup> 0.079 in/min (2.0 mm/min)

<sup>4</sup> Rate A (50°C/h), Loading 2 (50 N)

<sup>5</sup> This rating not intended to reflect hazards presented by this or any other material under actual fire conditions.

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