

## Technical Information



# PLEXIGLAS® SG10

## Overview

PLEXIGLAS® SG10 is an impact modified acrylic resin suitable for injection molding and extrusion. This grade is formulated for approved medical applications. It is a high flow resin designed to provide outstanding light transmission and water white clarity for disposable medical applications.

Some of the features and benefits of Plexiglas® SG10 are:

- Chemical Resistance
  - Good resistance to lipids and drug formulations
  - Good resistance to isopropyl alcohol (IPA)
  - Property retention after exposure to hospital antiseptics, acids and bases
- Sterilization
  - Stable to gamma radiation, E-beam, and ETO
  - Rapid recovery with excellent color stability
  - Retention of transparency and clarity
  - Retention of mechanical properties
- Durability and Processability
  - Moldflow simulation data available
  - Excellent melt processability
  - Reduced cycle times
  - Suitable for thin-wall applications and complex multi-cavity molds
  - Good bondability using solvent, ultrasonic, or radio frequency methods

| Physical                                       | Nominal Value (English)           | Nominal Value (SI)     | Test Method             |
|------------------------------------------------|-----------------------------------|------------------------|-------------------------|
| Density                                        | 1.15 g/cm <sup>3</sup>            | 1.15 g/cm <sup>3</sup> | ASTM D792               |
| Melt Mass-Flow Rate (MFR) (230°C/3.8 kg)       | 4.5 g/10 min                      | 4.5 g/10 min           | ASTM D1238              |
| Molding Shrinkage - Flow                       | 2.0E-3 to 8.0E-3 in/in            | 0.20 to 0.80 %         | ASTM D955               |
| Water Absorption (24 hr)                       | 0.40 %                            | 0.40 %                 | ASTM D570               |
| Mechanical                                     | Nominal Value (English)           | Nominal Value (SI)     | Test Method             |
| Tensile Modulus                                | 270000 psi                        | 1860 MPa               | ASTM D638               |
| Tensile Strength (Break)                       | 5300 psi                          | 36.5 MPa               | ASTM D638               |
| Tensile Elongation (Break)                     | 50 %                              | 50 %                   | ASTM D638               |
| Flexural Modulus                               | 270000 psi                        | 1860 MPa               | ASTM D790               |
| Flexural Strength (Yield)                      | 10300 psi                         | 71.0 MPa               | ASTM D790               |
| Impact                                         | Nominal Value (English)           | Nominal Value (SI)     | Test Method             |
| Notched Izod Impact (73°F (23°C))              | 0.90 ft-lb/in                     | 48 J/m                 | ASTM D256               |
| Hardness                                       | Nominal Value (English)           | Nominal Value (SI)     | Test Method             |
| Rockwell Hardness (M-Scale)                    | 37                                | 37                     | ASTM D785               |
| Thermal                                        | Nominal Value (English)           | Nominal Value (SI)     | Test Method             |
| Deflection Temperature Under Load <sup>1</sup> |                                   |                        | ASTM D648               |
| 66 psi (0.45 MPa), Annealed                    | 190 °F                            | 87.8 °C                |                         |
| 264 psi (1.8 MPa), Annealed                    | 181 °F                            | 82.8 °C                |                         |
| Vicat Softening Temperature                    |                                   |                        |                         |
| --                                             | 199 °F                            | 93.0 °C                | ASTM D1525 <sup>2</sup> |
| --                                             | 176 °F                            | 80.0 °C                | ASTM D1525 <sup>3</sup> |
| Thermal Conductivity                           | 1.5 Btu-in/hr/ft <sup>2</sup> /°F | 0.22 W/m/K             | ASTM C177               |

| Flammability                              | Nominal Value (English) | Nominal Value (SI) | Test Method |
|-------------------------------------------|-------------------------|--------------------|-------------|
| Flame Rating                              | HB                      | HB                 | UL 94       |
| Optical                                   | Nominal Value (English) | Nominal Value (SI) | Test Method |
| Refractive Index <sup>4</sup>             | 1.490                   | 1.490              | ASTM D542   |
| Light Transmittance (125.0 mil (3175 µm)) | 90.0 %                  | 90.0 %             | ASTM D1003  |
| Haze (125.0 mil (3175 µm))                | < 2.00 %                | < 2.00 %           | ASTM D1003  |
| Additional Information                    | Nominal Value (English) | Nominal Value (SI) | Test Method |
| ASTM Classification                       | PMMA 0230V2             | PMMA 0230V2        | ASTM D788   |

#### 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> Annealing cycle: 4hrs @ 176°F

<sup>2</sup> Rate A (50°C/h), Loading 1 (10 N)

<sup>3</sup> Rate A (50°C/h), Loading 2 (50 N)

<sup>4</sup> ND @ 72°F

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