For more information and technical assistance contact:

Phillips Sumika Polypropylene Company
P.O. Box 4910
The Woodlands, TX 77387-4910
800.231.1212 ext 4849

Marlex® AGN-650

Polypropylene Impact Copolymer, High Melt Flow

Applications:

- Automotive, Large Interior Panels
- Thin Wall Containers
- Large Industrial Parts
- Consumer Products

Agency Information:

- Meets FDA Regulation 21 CFR 177.1520 and may be safely used as articles for use in contact with food except for articles used for packing or holding food during cooking.

ASTM Nominal Properties

Property	English	SI	Method
Density	0.9 g/cc	0.9 g/cc	ASTM D1505
Melt Flow Rate, @ 230°C	66 g/10min	66 g/10min	ASTM D1238
Tensile Strength at Yield, 50 mm/min	3750 psi	25.9 MPa	ASTM D638
Flexural Modulus, Tangent, 13 mm/min	200,000 psi	1,380 MPa	ASTM D790
Flexural Modulus, Secant, 1.3 mm/min	180,000 psi	1240 MPa	ASTM D790
Notched Izod Impact Strength, @ 23°C	1.0 ft*lbf/in	53 J/m	ASTM D256
Notched Izod Impact Strength, @ 0°C	0.8 ft*lbf/in	43 J/m	ASTM D256
Notched Izod Impact Strength, @ -30°C	0.5 ft*lbf/in	27 J/m	ASTM D256
Heat Deflection Temperature, @ 0.455 MPa	229 °F	109 °C	ASTM D648
Heat Deflection Temperature, @ 1.82 MPa	131 °F	55 °C	ASTM D648
Rockwell Hardness, R Scale	96	96	ASTM D785
Shore D Hardness	61	61	ASTM D2240

Mechanical property testing has been performed on injection molded specimens molded per ASTM D4101.

The nominal properties reported herein are typical of the product but do not relflect normal testing variance and therefore should not be used for specification purposes.

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ISO Nominal Properties

Property	SI	Method
Density	0.9 g/cc	ISO 1183
Melt Flow Rate, @ 230°C	66 g/10min	ISO 1133
Tensile Strength at Yield, 50 mm/min	24.7 MPa	ISO 527
Flexural Modulus, 2.0 mm/min	1255 MPa	ISO 178
Notched Izod Impact Strength, @ 23°C	6.1 kJ/m^2	ISO 180
Notched Izod Impact Strength, @ -40°C	3.1 kJ/m^2	ISO 180
Heat Deflection Temperature, @ 0.455 MPa	96 °C	ISO 75
Heat Deflection Temperature, @ 1.82 MPa	53 °C	ISO 75
Rockwell Hardness, R Scale	96	ISO 2039
Shore Hardness, D Scale	61	ISO 868

Physical property testing performed on injection-molded specimens.

The nominal properties reported herein are typical of the product but do not reflect normal testing variance and therefore should not be used for specification purposes.

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Nominal Shrinkage, Injection Molding

Shrinkage Factors:
The shrinkage values provided below were obtained iwith simple plaques and are reported as nominal values. These values should be considered estimates given that resin shrinkage is influenced by several factors including part geometry, mold design, molding conditions, part cooling during and after molding. Consequently, the values given below cannot be used as absolute.

Shrinkage Verification:
Given that shrinkage is affected by many factors, it is the user's responsibility to verify the shrinkage for their own mold design and molding conditions before cutting tool steel. If a similar tool is already present, run the material on this tool with normal process and handling conditions and determine the shrinkage. If such a tool is not available, finish only one core and cavity using estimated shrinkage values, staying steel safe. Based on the shrinkage measurements of parts from this core/cavity combination, make the necessary adjustments to the shrinkage factor before cutting additional cores and cavities. Remember to wait at least 48 hrs before measuring shrinkage. Also, be aware the heat aging (or annealing) after molding can affect shrinkage.

Conditioning after Molding:

- 48 hr at 23°C

Nominal Shrinkage:

- 1.3 to 1.5% (0.013 to 0.015 in/in)

The above test results are based on 150 x 90 x 3mm edge gated plaques (1 mm gate).

Molding Guidelines

General Processing Conditions for: Injection Molding

- Rear Temperature: 350 - 390°F (145 - 200°C)
  Middle Temperature: 410 - 455°F (210 - 235°C)
  Front and Nozzle Temps: 410 - 455°F (210 - 235°C)
  Stock Temperature: 375 - 450°F (191 - 232°C)
  Mold Temperature: 73 - 120°F (23 - 50°C)

- Suggested shot size: 50 to 70%
  First stage injection pressure: Maximize
  Screw speed: 30 to 60%
  Packaging pressure: Minimize
  Back Pressure: 50 to 150 psi

Other Molding Considerations:
Dispersion of color concentrates is improved when using a screw with a mixing zone or a mixing nozzle.
Even though specific applications may require conditions outside of the given general guidelines, melt temperature above 500°F (260°C) may cause resin degradation and changes to resin properties.

For guidelines regarding other fabrication processes, please contact your Phillips Sumika technical service representative.

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