



## VINPOL™ PI005K

### Impact Copolymer Polypropylene

Melt Flow: 0.5

Density: 0.9

**VINPOL PI005K** is an impact block copolymer polypropylene designed for extruded sheet thermoforming, blow molding and vacuum molding applications. It has good impact resistance at low temperatures. It meets requirements of the U. S. Food and Drug Administration as specified in 21 CFR 177.1520, covering safe use of polyolefin articles and components of articles intended for direct food contact.

Resin Property	Typical Value	Units	Test Method
Melt Flow	0.5	g/10 min	ASTM D-1238
Density	0.9	g/cm <sup>3</sup>	ASTM D-792
Tensile Strength at Yield	4,120 (28)	psi (MPa)	ASTM D-638
Elongation at Break	>100	%	ASTM D-638
Flexural Modulus, 1% Secant	171,000 (1,180)	psi (MPa)	ASTM D-790
Notched Izod Impact Strength, 73°F (23°C)	No Break	ft-lb/in	ASTM D-256
Notched Izod Impact Strength, 14°F (-10°C)	0.827 (44)	ft-lb/in (J/m)	ASTM D-256
Heat Deflection Temperature, 4.6 kgf/cm <sup>2</sup>	212 (100)	°F (°C)	ASTM D-648

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Vinmar Polymers America, LLC / 16825 Northchase Drive, Suite 1400, Houston, TX 77060  
Phone: 281-902-0900 Fax: 281-260-8096

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## VINPOL™ PI020

### Impact Copolymer Polypropylene

Melt Flow: 2

Density: 0.902

**VINPOL PI020** is a copolymer polypropylene with an advanced nucleator technology formulation. It is designed for extrusion blowmolding processes. EBM bottles made from this product will have excellent gloss and low haze. \*This product is FDA compliant. \*\*This product complies with applicable EU food-contact legislation.

Resin Property*	Typical Value	Units	Test Method
Melt Flow (230°C/2.16 kg)	2	g/10 min	ASTM D-1238
Density	0.902	g/cm <sup>3</sup>	ASTM D-792
Tensile Strength at Yield, 50 mm/min	3,850 (26.5)	psi (MPa)	ASTM D-638
Tensile Elongation at Yield	13.5	%	ASTM D-638
Flexural Modulus, 1% Secant, 1 mm/min, Procedure A	140,000 (964)	psi (MPa)	ASTM D-790
Notched Izod Impact Strength, 73°F (23°C)	8 (425)	ft-lb/in (J/m)	ASTM D-256A
DTUL @ 66 psi, Unannealed	194 (90)	°F (°C)	ASTM D-648

*\*The base resin in this product complies with 21 CFR 177.1520(a) (3) (i) and (c) 3.1a and 3.2a. In addition, all other ingredients used in this product meet the requirements of their respective FDA regulations and 21 CFR 177.1520(b), subject to no limitations on temperature or food type contacted. Accordingly, this product can be used in contact with all food types listed in 21 CFR 176.170(c), Table 1, under Conditions of use A through H, identified in 21 CFR 176.170(c), Table 2*

*\*\*This product complies with applicable European Union (EU) food-contact legislation, including the EU regulation (EU) No 10/2011, as amended, when used in food packaging applications, subject to the following conditions and limitations: All monomers and additives used in this product are included in the positive lists of the EU regulation (EU) No 10/, as amended. Two additives used in the product are subject to a specific migration limit (SML). Information on the applicable SML will be supplied upon request. It is the responsibility of the manufacturer of the finished food-contact article to verify compliance of the finished article with applicable EU legislation, including the SML noted above, as well as the overall migration limit. In addition, it is the responsibility of the manufacturer of the finished article to verify that their final article, made according to good manufacturing practices (GMPs), does not modify the organoleptic properties of the food. Provided that the above limitations are met in the finished article, the product complies with applicable EU law, including Article 3 of the Framework Regulation 1935/2004/EC, and the EU regulation (EU) No 10/2011, as amended.*

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## VINPOL™ PI040

### Impact Copolymer Polypropylene

Melt Flow: 4

Density: 0.9

**VINPOL PI040** is an impact block copolymer polypropylene designed for extruded sheet thermoforming, blow molding and vacuum molding applications. It has good impact resistance at low temperatures. It meets requirements of the U. S. Food and Drug Administration as specified in 21 CFR 177.1520, covering safe use of polyolefin articles and components of articles intended for direct food contact.

Resin Property*	Typical Value	Units	Test Method
Melt Flow (230°C/2.16 kg)	4	g/10 min	ASTM D-1238
Density	0.9	g/cm <sup>3</sup>	Supplier Method
Tensile Strength at Yield, 50 mm/min	3,980 (27)	psi (MPa)	ASTM D-638
Elongation at Break	>100	%	ASTM D-638
Flexural Modulus, 1% Secant	185,000 (1,270)	psi (MPa)	ASTM D-790
Notched Izod Impact Strength, 73°F (23°C)	1.65 (89)	ft-lb/in (J/m)	ASTM D-256
Notched Izod Impact Strength, 14°F (-10°C)	0.55 (29)	ft-lb/in (J/m)	ASTM D-256
Heat Deflection Temperature, 4.6 kgf/cm <sup>2</sup>	221 (105)	°F (°C)	ASTM D-648

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## VINPOL™ PI040K

### Impact Copolymer Polypropylene

Melt Flow: 4

Density: 0.9

**VINPOL PI040K** is an impact copolymer polypropylene that exhibits very high flexibility and strength. This resin is considered “no break.” Meets all requirements of the U. S. Food and Drug Administration as specified in 21 CFR 177.1520, covering safe use of polyolefin articles and components of articles intended for direct food contact.

Resin Property*	Typical Value	Units	Test Method
Melt Flow (230°C/2.16 kg)	4	g/10 min	ASTM D-1238
Density	0.9	g/cm <sup>3</sup>	Supplier Method
Tensile Strength at Yield, 50 mm/min	3,640 (25)	psi (MPa)	ASTM D-638
Elongation at Yield, 50 mm/min	7	%	ASTM D-638
Flexural Modulus, 1% Secant, 1.3 mm/min	160,000 (1,100)	psi (MPa)	ASTM D-790
Notched Izod Impact Strength, 73°F (23°C)	No Break	ft-lb/in	ASTM D-256

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## VINPOL™ PI080

### Impact Copolymer Polypropylene

Melt Flow: 8

Density: 0.9

**VINPOL PI080** is a high crystallinity, medium impact copolymer polypropylene designed for injection molding applications. It has medium flow and good color-ability and dimensional stability. Applications include automotive interior parts and trim, toys, child safety seats and other consumer applications.

Resin Property*	Typical Value	Units	Test Method
Melt Flow (230°C/2.16 kg)	8	g/10 min	ASTM D-1238
Density	0.91	g/cm <sup>3</sup>	Supplier Method
Tensile Strength at Yield, 2.0 in/min (51 mm/min)	3,600 (24.8)	psi (MPa)	ASTM D-638
Elongation at Yield, 2.0 in/min (51 mm/min)	6.4	%	ASTM D-638
Flexural Modulus, 1% Secant, 0.051 in/min (1.3 mm/min)	163,000 (1,120)	psi (MPa)	ASTM D-790A
Flexural Modulus, 1% Secant, 0.51 in/min (13 mm/min)	189,000 (1,300)	psi (MPa)	ASTM D-790B
Notched Izod Impact Strength, 73°F (23°C)	4.3 (230)	ft-lb/in (J/m)	ASTM D-256A
Gardner Impact Strength, -20°F (-29°C), 0.125 in (3.18mm) Geometry GC	211 (23.8)	In-lb (J)	ASTM D-5420
DTUL, 66 psi Unannealed	177 (80.4)	°F (°C)	ASTM D-648

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## VINPOL™ PI120K

### Impact Copolymer Polypropylene

Melt Flow: 12

Density: 0.9

**VINPOL PI120K** is an impact copolymer polypropylene designed for heavy duty injection molding applications requiring excellent processing and physical properties. Targeted applications include pails, crates and other rugged molded articles. This product meets FDA 21 CFR 177.1520, covering safe use of polyolefin articles and components of articles intended for direct food contact.

Resin Property*	Typical Value	Units	Test Method
Melt Flow (230°C/2.16 kg)	12	g/10 min	ASTM D-1238
Density	0.9	g/cm <sup>3</sup>	ASTM D-1505
Tensile Strength at Yield, 50mm/min	3,300 (23)	psi (MPa)	ASTM D-638
Elongation at Yield, 50mm/min	5	%	ASTM D-638
Flexural Modulus, 1% Secant	165,000 (1,138)	psi (MPa)	ASTM D-790
Notched Izod Impact Strength, 23° C (73°F)	No Break	ft-lb/in	ASTM D-256A
Notched Izod Impact Strength, 0°C (32°F)	2.5 (133)	ft-lb/in (J/m)	ASTM D-256A
Notched Izod Impact Strength, -18°C (0°F)	2.1 (112)	ft-lb/in (J/m)	ASTM D-256A
Heat Deflection Temp., 66psi	207 (97)	°F (°C)	ASTM D-648
Heat Deflection Temp., 264psi	124 (51)	°F (°C)	ASTM D-648
Rockwell Hardness	90	R	ASTM D-785

\*Specimens injection molded per conditions specified in ASTM D4101.

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## VINPOL™ PI200

### Impact Copolymer Polypropylene

Melt Flow: 20

Density: 0.90

**VINPOL PI200** is a impact strength copolymer resin suitable for injection molding applications with good clarity. This product meets all requirements of the U.S. Food and Drug Administration as specified in 21 CFR 177.1520, covering safe use of polyolefin articles intended for direct food contact.

Resin Property	Typical Value	Units	Test Method
Melt Flow	20	g/10 min	ASTM D-1238
Density	0.90	g/cm <sup>3</sup>	ASTM D-4883
Tensile Strength at Yield (51 mm/min)	3,200 (22)	psi (MPa)	ASTM D-638
Elongation at Yield (51 mm/min)	6	%	ASTM D-638
Flexural Modulus (1% Secant, 1.3 mm/min)	150,000 (1,030)	psi (MPa)	ASTM D-790A
Flexural Modulus (1% Secant, 13 mm/min)	170,000 (1,170)	psi (MPa)	ASTM D-790B
Notched Izod Impact Strength, 23° C (73°F)	3.3 (176)	ft-lb/in (J/m)	ASTM D-256A

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## VINPOL™ PI200K

### Impact Copolymer Polypropylene

Melt Flow: 20

Density: 0.90

**VINPOL PI200K** is an impact copolymer polypropylene designed for injection molding and as a base resin for compounding applications. It has a good combination of impact performance, stiffness and dimensional stability. Targeted applications include electrical appliances, battery cases, automotive parts and other containers.

Resin Property	Typical Value	Units	Test Method
Melt Flow	20	g/10 min	ASTM D-1238
Density	0.90	g/cm <sup>3</sup>	ASTM D-792
Tensile Strength at Yield	3,120 (21.5)	psi (MPa)	ASTM D-638
Elongation at Break	<300	%	ASTM D-638
Flexural Modulus (1% Secant, Inj. Molded)	142,000 (979)	psi (MPa)	ASTM D-790
Heat Deflection Temperature (4.6 kgf/cm <sup>2</sup> )	110 (230)	°C (°F)	ASTM D-648
Notched Izod Impact Strength, 23° C	>9.2 (No Break)	ft-lb/in	ASTM D-256
Notched Izod Impact Strength, -20° C	1.3 (69)	ft-lb/in (J/m)	ASTM D-256
Rockwell Hardness	72	R	ASTM D-785

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## VINPOL™ PI350

### Impact Copolymer Polypropylene

Melt Flow: 35

Density: 0.900

**VINPOL PI350** is a high melt impact copolymer resin suitable for injection molding applications. Meets all requirements of the U.S. Food and Drug Administration as specified in 21 CFR 177.1520, covering safe use of polyolefin articles intended for direct food contact.

Resin Property	Typical Value	Units	Test Method
Melt Flow, 2.16kg at 230°C	35	g/10 min	ASTM D-1238
Density	0.900	g/cm <sup>3</sup>	ASTM D-4883
Tensile Strength at Yield, 2"/min (51mm/min)	3,300 (23)	psi (MPa)	ASTM D-638
Elongation at Yield, 2"/min (51mm/min)	8	%	ASTM D-638
Flexural Modulus, 1% Secant, 1.3mm/min	140,000 (965)	psi (MPa)	ASTM D-790A
Flexural Modulus, 1% Secant, 13mm/min	160,000 (1,100)	psi (MPa)	ASTM D-790B
Notched Izod Impact Strength, 73° F (23°C)	2.5 (133)	ft-lbf/in (J/m)	ASTM D-256A

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## VINPOL™ PI350K

### Impact Copolymer Polypropylene

Melt Flow: 35

**VINPOL PI350K** is an ultra high impact copolymer polypropylene designed for injection molding and as a base resin for compounding applications. It has an excellent combination of impact performance, stiffness, flow mechanical properties and heat resistance. Targeted applications include electrical/home appliances, automotive and industrial parts, large containers and thin wall/high speed injection applications.

Resin Property	Typical Value	Units	Test Method
Melt Flow	35	g/10 min	ASTM D-1238
Tensile Strength at Yield	2,990 (20.6)	psi (MPa)	ASTM D-638
Elongation at Break	<300	%	ASTM D-638
Flexural Modulus (1% Secant, Inj. Molded)	142,000 (981)	psi (MPa)	ASTM D-790
Heat Distortion Temperature	110 (230)	°C (°F)	ASTM D-648
Notched Izod Impact Strength, 23° C	>9 (No Break)	ft-lb/in	ASTM D-256
Notched Izod Impact Strength, -20° C	1.3 (69)	ft-lb/in (J/m)	ASTM D-256
Rockwell Hardness	72	R	ASTM D-785
Accelerated Oven Aging (in Air at 150°C)	360	Hrs	ASTM D-3012

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## VINPOL™ PI500

### Impact Copolymer Polypropylene

Melt Flow: 50

Density: 0.9

**VINPOL PI500** is an injection molding grade, high impact copolymer polypropylene. It is designed for large consumer and industrial parts, automotive parts, household goods, containers and tools and tote boxes requiring high melt flow. It has a good balance of stiffness and toughness, fast molding, good colorability, mold release, surface finish and thermal stability.

Resin Property	Typical Value	Units	Test Method
Melt Flow	50	g/10 min	ASTM D-1238
Density	0.9	g/cm <sup>3</sup>	Supplier Method
Tensile Strength at Yield, 2.0 in/min (51 mm/min)	2,960 (20)	psi (MPa)	ASTM D-638
Elongation at Yield, 2.0 in/min (51 mm/min)	3.8	%	ASTM D-638
Flexural Modulus, 1% Secant, 0.051 in/min (1.3 mm/min)	152,000 (1,050)	psi (MPa)	ASTM D-790A
Flexural Modulus, 1% Secant, 0.51 in/min (13 mm/min)	171,000 (1,180)	psi (MPa)	ASTM D-790B
Notched Izod Impact Strength, 73° F (23°C)	2.2 (120)	ft-lb/in (J/m)	ASTM D-256A
Gardner Impact Strength-20°F (-29°C), 0.125 in (3.18mm)	203 (22.9)	In-lb (J)	ASTM D-5420
Deflection Temp. Under Load (DTUL) (66psi, Unannealed)	205 (96)	°F (°C)	ASTM D-648

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## VINPOL™ PI800

### Impact Copolymer Polypropylene

Melt Flow: 80

Density: 0.895

**VINPOL PI800** is an impact copolymer polypropylene designed for compounds and high speed injection molding suitable for thin walled parts with very short molding cycles. This resin has excellent low temperature impact strength. This resin complies with U.S. FDA 21 CFR 177.1520.

Resin Property	Typical Value	Units	Test Method
Melt Flow	80	g/10 min	ASTM D-1238
Density	0.895	g/cm <sup>3</sup>	ASTM D-792
Tensile Strength at Yield	2,760 (19)	psi (MPa)	ASTM D-638
Tensile Elongation at Yield	7	%	ASTM D-638
Flexural Modulus, 1% Secant, Injection Molded	131,000 (900)	psi (MPa)	ASTM D-790
Notched Izod Impact Strength, 73° F (23°C)	3 (160)	ft-lbf/in (J/m)	ASTM D-256
Notched Izod Impact Strength, -4° F (-20°C)	1.1 (59)	ft-lbf/in (J/m)	ASTM D-256
Deflection Temp. Under Load (DTUL), 66psi (455kPa)	196 (91)	°F (°C)	ASTM D-648
Deflection Temp. Under Load (DTUL), 264psi (1,820kPa)	126 (63)	°F (°C)	ASTM D-648
Vicat Softening Point at 10N	279 (137)	°F (°C)	ASTM D-1525
Hardness	43	Rockwell R	ASTM D-785

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