## Plexiglas® V044

Polymethyl Methacrylate Acrylic Altuglas International of Arkema Inc.

## Message:

Plexiglas® V044 is a thermoplastic acrylic resin formulated for extrusion applications. It is characterized by its chemical and heat resistance as well high melt flow. Plexiglas® V044 has excellent weatherability and optical properties allowing it to excel in applications requiring outdoor stability, high quality surface appearance and/or precision optics. Plexiglas® V044 is easy to process due to its exceptional thermal stability, extrusion melt strength, and excellent tool surface reproduction and release properties. It has excellent resistance to many chemicals including solutions of inorganic acids, alkalis and aliphatic hydrocarbons such as VM&P naphtha and heptane. Additionally, it is virtually unaffected by a wide range of commercial products including many beverages, foodstuffs, detergent solutions and cleaners.

General Information			
UL YellowCard	E39437-231434	E39437-231435	
Features	BPA Free		
	Good Color Stability		
	Good Dimensional Stability		
	Good Thermal Stability		
	Good UV Resistance		
	Good Weather Resistance		
	High Clarity		
	High Scratch Resistance		
	Low Shrinkage		
	Medium Heat Resistance		
Uses	Lighting Diffusers		
	Optical Applications		
Agency Ratings	FDA 21 CFR 177.1010		
RoHS Compliance	RoHS Compliant		
Appearance	Clear/Transparent		
	Colors Available		
	Translucent		
Forms	Pellets		
Processing Method	Extrusion		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.18	g/cm³	ASTM D792
Melt Mass-Flow Rate (MFR) (230°C/3.8 kg)	2.3	g/10 min	ASTM D1238
Molding Shrinkage - Flow	0.20 to 0.60	%	ASTM D955
Water Absorption (24 hr)	0.30	%	ASTM D570
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (M-Scale)	91		ASTM D785

Mechanical         Naminal Value         Unit         Teach Method           Tornslik Modulus         31000         MPa         ASTM D638           Ternslie Strength (Yield)         70.3         MPa         ASTM D638           Ternslie Strength (Yield)         6.0         %         ASTM D638           Fleoural Modulus         3100         MPa         ASTM D790           Impact         Nominal Value         Unit         Test Method           Monched Under (23°C)         16         //m         ASTM D636           Thermal         Nominal Value         Unit         Test Method           O.45 MPa, Annealed         94.4         *C         ************************************					
Tensile Strength (Yield)         70.3         MPa         ASTM D638           Tensile Elongation (Break)         6.0         %         ASTM D638           Flexural Strength (Yield)         3100         MPa         ASTM D790           Impact         Nominal Value         Urit         Test Method           Notched Izod Impact (23°C)         16         J/m         ASTM D256           Themal         Nominal Value         Urit         Test Method           Deflection Temperature Under Load 1         "C         Test Method           0.45 MPA, Annealed         94.4         "C         STM D648           0.45 MPA, Annealed         94.4         "C         ASTM D1525 C	Mechanical	Nominal Value	Unit	Test Method	
Tensile Elongation (Break)         6.0         %         ASTM D638           Flexural Modulus         3100         MPa         ASTM D790           Flexural Modulus         103         MPa         ASTM D790           Impact         Nominal Value         Unit         Test Method           Nothed Izod Impact (23°C)         16         // m         ASTM D648           Thermal         Nominal Value         Unit         Test Method           Deflection Temperature Under Load 1         "C         STM D648           0.45 MPa, Annealed         94.4         "C         STM D648           1.8 MPa, Annealed         92.8         "C         ASTM D648           "CYKat Softening Temperature         97.2         "C         ASTM D1525 2"           "-"         14.9         W/m/K         ASTM C177           Flammal Conductivity         Norminal Value         Unit         Test Method           Refractive Index."         1.490         "C         ASTM D1033           Refractive Index."         1.490	Tensile Modulus	3100	MPa	ASTM D638	
Flexural Modulus         3100         MPa         ASTM D790           Flexural Strength (Vield)         103         MPa         ASTM D290           Impact         Norchical Value         Unit         Test Method           Notched Izo Impact (23°C)         16         J/m         ASTM D256           Thermal         Norminal Value         Unit         Test Method           Deflection Temperature Under Load 1         "C         ASTM D256           0.45 MPa, Annealed         94.4         "C         ************************************	Tensile Strength (Yield)	70.3	MPa	ASTM D638	
Flourial Strength (Yield)         103         MPa         ASTM D790           Impact         Nominal Value         Unit         Test Method           Notched Izad Impact (23°C)         16         J/m         ASTM D256           Thermal         Nominal Value         Unit         Test Method           Deflection Temperature Under Load 1         "C         STM D648           4.6 MPa, Annealed         94.4         "C         STM D648           4.6 MPa, Annealed         92.8         "C         STM D1525 2           ***C         ASTM D1525 3         The STM D1525 3         The STM D1525 3           ***C         ASTM D1525 3         The STM D1525 3         The STM D1525 3         The STM D1525 3           ***C         ASTM D1525 3         The STM D1525 3	Tensile Elongation (Break)	6.0	%	ASTM D638	
Impact         Nominal Value         Unit         Test Method           Notched Izod Impact (23°C)         16         I/m         ASTM D256           Thermal         Nominal Value         Unit         Test Method           Deflection Temperature Under Load <sup>1</sup> "C         STM D648           0.45 MPa, Annealed         94.4         "C         STM D648           1.8 MPa, Annealed         94.4         "C         STM D1525 <sup>2</sup> "Catal Softening Temperature         103         "C         ASTM D1525 <sup>2</sup> "         103         "C         ASTM D1525 <sup>3</sup> "Thermal Conductivity         0.19         W/m/K         ASTM D1525 <sup>3</sup> Thermal Conductivity         0.19         W/m         ASTM D1525 <sup>3</sup> Flame Rating         HB         Unit         Test Metho	Flexural Modulus	3100	MPa	ASTM D790	
Notched Izod Impact (23°C) 16	Flexural Strength (Yield)	103	MPa	ASTM D790	
Themal         Nominal Value         Unit         Test Method           Deflection Temperature Under Load 1         "C         ASTM D648           0.45 MPa, Annealed         94.4         "C           1.8 MPa, Annealed         92.8         "C           Vicat Softening Temperature         "C         ASTM D1525 2	Impact	Nominal Value	Unit	Test Method	
Defiction Temperature Under Load <sup>1</sup> ASTM D648           0.45 MPa, Annealed         94.4         "C           1.8 MPa, Annealed         92.8         "C           Vicat Softening Temperature	Notched Izod Impact (23°C)	16	J/m	ASTM D256	
0.45 MPa, Annealed         94.4         *C           1.8 MPa, Annealed         92.8         *C           Vicat Softening Temperature         ***         ASTM D1525 ²            103         ***C         ASTM D1525 ³            97.2         ***C         ASTM D1525 ³           Thermal Conductivity         0.19         Wm/K         ASTM C177           Flammability         Nominal Value         ***Un.94         Wm/K           Plane Rating         HB         ***Un.94         ***Un.94           Optical         Nominal Value         Unit         Test Method           Refractive Index ⁴         1.490         ***         ASTM D1003           Haze (3180 μm)         < 1.0	Thermal	Nominal Value	Unit	Test Method	
Name	Deflection Temperature Under Load <sup>1</sup>			ASTM D648	
Vical Softening Temperature         "C         ASTM D1525 2            97.2         "C         ASTM D1525 3           Thermal Conductivity         97.2         "C         ASTM D1525 3           Thermal Conductivity         0.19         W/m/K         ASTM C177           Flammability         Nominal Value         Test Method           Plane Rating         HB         Unit         Test Method           Refractive Index 4         1.490         %         ASTM D1003           Haze (3180 µm)         92.0         %         ASTM D1003           Haze (3180 µm)         < 1.0	0.45 MPa, Annealed	94.4	°C		
103	1.8 MPa, Annealed	92.8	°C		
	Vicat Softening Temperature				
Priemal Conductivity   D.19   W/m/K   ASTM C177   Flammability   Nominal Value   Test Method   Flame Rating   HB   Unit   Test Method   Plame Rating   HB   Unit   Test Method   Plame Rating   Nominal Value   Unit   Test Method   Refractive Index		103	°C	ASTM D1525 <sup>2</sup>	
Flammability         Nominal Value         Test Method           Flame Rating         HB         Unit         Test Method           Optical         Nominal Value         Unit         Test Method           Refractive Index <sup>4</sup> 1,490         %         ASTM D542           Transmittance (3180 µm)         92.0         %         ASTM D1003           Haze (3180 µm)         < 1.0		97.2	°C	ASTM D1525 <sup>3</sup>	
Pame Rating   HB   Unit   Test Method   Nominal Value   Unit   Test Method   Nominal Value   ASTM D542   Transmittance (3180 µm)   92.0   %   ASTM D1003   ASTM	Thermal Conductivity	0.19	W/m/K	ASTM C177	
Optical         Nominal Value         Unit         Test Method           Refractive Index ⁴         1.490         - ASTM D542           Transmittance (3180 µm)         92.0         %         ASTM D1003           Haze (3180 µm)         < 1.0	Flammability	Nominal Value		Test Method	
Refractive Index 4         1.490         ASTM D542           Transmittance (3180 µm)         92.0         %         ASTM D1003           Haze (3180 µm)         < 1.0	Flame Rating	НВ		UL 94	
Transmittance (3180 μm)         92.0         %         ASTM D1003           Haze (3180 μm)         < 1.0	Optical	Nominal Value	Unit	Test Method	
Haze (3180 µm)         < 1.0         %         ASTM D1003           Additional Information         Nominal Value         Test Method           ASTM Classification         PMMA 0131V2         ASTM D788           Injection         Nominal Value         Unit           Drying Temperature         82.2 to 87.8         °C           Drying Time         4.0         hr           Suggested Max Moisture         0.10         %           Suggested Shot Size         50         %           Suggested Max Regrind         20         %           Processing (Melt) Temp         < 271	Refractive Index <sup>4</sup>	1.490		ASTM D542	
Additional Information         Nominal Value         Test Method           ASTM Classification         PMMA 0131V2         ASTM D788           Injection         Nominal Value         Unit           Drying Temperature         82.2 to 87.8         °C           Drying Time         4.0         hr           Suggested Max Moisture         0.10         %           Suggested Shot Size         50         %           Suggested Max Regrind         20         %           Processing (Melt) Temp         < 271	Transmittance (3180 μm)	92.0	%	ASTM D1003	
ASTM Classification         PMMA 0131V2         ASTM D788           Injection         Nominal Value         Unit           Drying Temperature         82.2 to 87.8         °C           Drying Time         4.0         hr           Suggested Max Moisture         0.10         %           Suggested Shot Size         50         %           Suggested Max Regrind         20         %           Processing (Melt) Temp         < 271	Haze (3180 μm)	< 1.0	%	ASTM D1003	
Injection         Nominal Value         Unit           Drying Temperature         82.2 to 87.8         °C           Drying Time         4.0         hr           Suggested Max Moisture         0.10         %           Suggested Shot Size         50         %           Suggested Max Regrind         20         %           Processing (Melt) Temp         < 271	Additional Information	Nominal Value		Test Method	
Drying Temperature         82.2 to 87.8         °C           Drying Time         4.0         hr           Suggested Max Moisture         0.10         %           Suggested Shot Size         50         %           Suggested Max Regrind         20         %           Processing (Melt) Temp         < 271	ASTM Classification	PMMA 0131V2		ASTM D788	
Drying Time         4.0         hr           Suggested Max Moisture         0.10         %           Suggested Shot Size         50         %           Suggested Max Regrind         20         %           Processing (Melt) Temp         < 271	Injection	Nominal Value	Unit		
Suggested Max Moisture       0.10       %         Suggested Shot Size       50       %         Suggested Max Regrind       20       %         Processing (Melt) Temp       < 271	Drying Temperature	82.2 to 87.8	°C		
Suggested Shot Size       50       %         Suggested Max Regrind       20       %         Processing (Melt) Temp       < 271	Drying Time	4.0	hr		
Suggested Max Regrind       20       %         Processing (Melt) Temp       < 271	Suggested Max Moisture	0.10	%		
Processing (Melt) Temp       < 271       °C         Screw L/D Ratio       15.0:1.0 to 20.0:1.0	Suggested Shot Size	50	%		
Screw L/D Ratio       15.0:1.0 to 20.0:1.0         Screw Compression Ratio       2.0:1.0 to 2.5:1.0         Vent Depth       0.051       mm         NOTE         1.       Annealing cycle: 4hrs @ 80°F         2.       Rate A (50°C/h), Loading 1 (10 N)         3.       Rate A (50°C/h), Loading 2 (50 N)	Suggested Max Regrind	20	%		
Screw Compression Ratio       2.0:1.0 to 2.5:1.0         Vent Depth       0.051       mm         NOTE         1.       Annealing cycle: 4hrs @ 80°F         2.       Rate A (50°C/h), Loading 1 (10 N)         3.       Rate A (50°C/h), Loading 2 (50 N)	Processing (Melt) Temp	< 271	°C		
Vent Depth         0.051         mm           NOTE         1.         Annealing cycle: 4hrs @ 80°F           2.         Rate A (50°C/h), Loading 1 (10 N)         3.           3.         Rate A (50°C/h), Loading 2 (50 N)	Screw L/D Ratio	15.0:1.0 to 20.0:1.0			
NOTE  1. Annealing cycle: 4hrs @ 80°F  2. Rate A (50°C/h), Loading 1 (10 N)  3. Rate A (50°C/h), Loading 2 (50 N)	Screw Compression Ratio	2.0:1.0 to 2.5:1.0			
1. Annealing cycle: 4hrs @ 80°F 2. Rate A (50°C/h), Loading 1 (10 N) 3. Rate A (50°C/h), Loading 2 (50 N)	Vent Depth	0.051	mm		
2. Rate A (50°C/h), Loading 1 (10 N) 3. Rate A (50°C/h), Loading 2 (50 N)	NOTE				
3. Rate A (50°C/h), Loading 2 (50 N)	1.	Annealing cycle: 4hrs @ 80°F	Annealing cycle: 4hrs @ 80°F		
	2.	Rate A (50°C/h), Loading 1 (10 N)	Rate A (50°C/h), Loading 1 (10 N)		
4. ND @ 72°F	3.	Rate A (50°C/h), Loading 2 (50 N)	Rate A (50°C/h), Loading 2 (50 N)		
	4.	ND @ 72°F			

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