Plexiglas® HFI10G

Polymethyl Methacrylate Acrylic

Altuglas International of Arkema Inc.

Message:

Plexiglas® HFI10G is an impact modified thermoplastic acrylic resin formulated for injection molding. This grade is formulated for approved medical applications and has improved gamma resistance compared to HFI10. It has high melt flow, enhanced mold release properties and provides 10 times the impact resistance of standard acrylics while maintaining excellent optical properties.

General Information					
Additive	Impact Modifier				
Features	BPA Free				
	E-beam Sterilizable				
	Ethylene Oxide Sterilizable				
	Good Color Stability				
	Good Dimensional Stability				
	Good Thermal Stability				
	Good Toughness				
	Good UV Resistance				
	Good Weather Resistance				
	High Clarity				
	High Flow				
	High Impact Resistance				
	Impact Modified				
	Low Shrinkage				
	Radiation (Gamma) Resistant				
	Scratch Resistant				
Uses	Medical Devices				
	Medical/Healthcare Applications				
Agency Ratings	USP Class VI				
RoHS Compliance	RoHS Compliant				
Appearance	Clear/Transparent				
Forms	Pellets				
Processing Method	Injection Molding				
Physical	Nominal Value	Unit	Test Method		
Specific Gravity	1.15	g/cm³	ASTM D792		
Melt Mass-Flow Rate (MFR) (230°C/3.8 kg)	3.3	g/10 min	ASTM D1238		
Molding Shrinkage - Flow	0.30 to 0.80	%	ASTM D955		
Water Absorption (24 hr)	0.40	%	ASTM D570		
Hardness	Nominal Value	Unit	Test Method		

Mochanical Nominal Value Unit Test Method Tensile Modulus 1860 MPa ASTM D638 Tensile Elongation (Sreak) 50 MPa ASTM D638 Finerale Elongation (Sreak) 50 % ASTM D730 Fineral Strength (Yield) 1860 MPa ASTM D730 Fineral Strength (Yield) 71.0 MPa ASTM D730 Impact Norminal Value Unit Test Method Normal Strength (Yield) 48 Unit Test Method Thermal Norminal Value Unit Test Method Pethection Temperature Under Load 1 C Test Method Park Annealed 88.9 C ASTM D525 Test 1.8 MPa, Annealed 88.9 C ASTM D525 Test 2. Residency Temperature S2.8 C ASTM D525 Test 3. Bernard Silver 93.9 C ASTM D525 Test 3. Bernard Silver Nominal Value Test Method 4 Steam Rating Nominal Value Test Method Refactive	Rockwell Hardness (M-Scale)	38		ASTM D785	
Tensile Strength (Yield) 37.9 MPa ASTM D638 Tensile Biongation (Break) 50 % ASTM D730 Flexural Strength (Yield) 1560 MPa ASTM D730 Flexural Strength (Yield) 71.0 MPa ASTM D730 Notched Izod Impact (23°C) 48 Jm ASTM D256 Thermal Nominal Value Unit Test Method D46 MPa, Annealed 59.4 C STM D648 B. MPa, Annealed 79.4 C STM D1523° 1		Nominal Value	Unit	Test Method	
Personal Reformation (Bready) 50 50 75 75 75 75 75 75	Tensile Modulus	1860	MPa	ASTM D638	
Beaural Modulus 1880 MPa ASTM D790 Recural Strength (Yeldo) 71.0 MPa ASTM D790 Impact Nominal Value Unit Teat Method Notched Izod Impact (23°C) 48 //m ASTM D256 Therman Nominal Value //m ASTM D648 Deflection Temperature Under Load 1	Tensile Strength (Yield)	37.9	MPa	ASTM D638	
Flowural Strength (Yield) 71.0 MPa ASTM D790 Impact Nominal Value Unit Test Method Notched Izod Impact (23°C) 48 //m ASTM D256 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load ¹ C ASTM D648 0.45 MPa, Annealed 88.9 *C 1.8 MPa, Annealed 89.9 *C ASTM D1825 ² ************************************	Tensile Elongation (Break)	50	%	ASTM D638	
Impact Nominal Value Unit Test Method Notched Izod Impact (23°C) 48 J/m ASTM D256 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load 1	Flexural Modulus	1860	MPa	ASTM D790	
Noticeed Izod Impact (23°C) 48 J/m ASTM D256 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load ¹	Flexural Strength (Yield)	71.0	MPa	ASTM D790	
Deflection Temperature Under Load 1 ASTM D648 0.45 MPa, Annealed 88.9 "C 1.8 MPa, Annealed 79.4 "C Vicat Softening Temperature "Security Softening Temperature "C "	Impact	Nominal Value	Unit	Test Method	
Deflection Temperature Under Load ¹ ASTM D648 0.45 MPa, Annealed 68.9 "C 1.8 MPa, Annealed 79.4 "C Vicat Softening Temperature	Notched Izod Impact (23°C)	48	J/m	ASTM D256	
0.45 MPa, Annealed 88.9 "C 1.8 MPa, Annealed 79.4 "C Vicat Softening Temperature "C ASTM D1525 ²	Thermal	Nominal Value	Unit	Test Method	
1.8 MPa, Annealed 79.4 "C Vicat Softening Temperature C ASTM D1525 ³	Deflection Temperature Under Load ¹			ASTM D648	
Vicata Softening Temperature 93.9 "C ASTM D1525 ² 82.8 "C ASTM D1525 ³ Thermal Conductivity 9.22 W/m/K ASTM C177 Flammability Nominal Value Test Method Plane Rating HB Unit Test Method Optical Nominal Value ASTM D542 Transmittance (3180 µm) 90.0 % ASTM D1003 Additional Information Nominal Value ASTM D1003 ASTM D1831 Nominal Value Test Method ASTM D1841 Vinit Test Method ASTM D788 Injection Nominal Value Vinit Drying Temperature 79.4 "C Test Method Drying Time 3.0 to 4.0 "C Test Method Middle Temperature 227 to 249 "C Test Method Nozzle Temperature 232 to 254 "C Test Method Nozzle Temperature 232 to 267 "C Test Method Mold Temperature	0.45 MPa, Annealed	88.9	°C		
93.9 93.9 °C ASTM D1525 °C ASTM D1526 °	1.8 MPa, Annealed	79.4	°C		
α 82.8 "C ASTM D1525 3 Thermal Conductivity 0.22 W/m/K ASTM C177 Flammability Nominal Value Test Method Optical HB Unit Test Method Refractive Index ⁴ 1.490 ASTM D542 Transmittance (3180 μm) 90.0 % ASTM D1003 Additional Information Nominal Value Fest Method ASTM Classification PMMA 0231V3 *C Injection Nominal Value Unit Drying Temperature 79.4 *C Polying Time 3.0 to 4.0 hr Rear Temperature 227 to 249 *C Middle Temperature 238 to 260 *C Front Temperature 232 to 254 *C Nozzle Temperature 232 to 254 *C Vocessing (Melt) Temp 243 to 266 *C Strew Speed 50 to 100 pm Note *C Strew Speed 50 to 100 pm Note *C <td>Vicat Softening Temperature</td> <td></td> <td></td> <td></td>	Vicat Softening Temperature				
Thermal Conductivity 0.22 W/m/K ASTM C177 Flammability Nominal Value Test Method Flame Rating HB Unit Test Method Optical Nominal Value Unit Test Method Refractive Index ⁴ 1.490 % ASTM D542 Transmittance (3180 µm) 90.0 % ASTM D1003 Additional Information Nominal Value Test Method ASTM Classification PMMA 0231V3 C Injection Nominal Value Unit Drying Temperature 79.4 *C Rear Temperature 227 to 249 *C Middle Temperature 238 to 260 *C Front Temperature 232 to 254 *C Nozzle Temperature 232 to 254 *C Vecessing (Melt) Temp 243 to 266 *C Strew Speed 50 to 100 *pm Nozzle Temperature 32 to 76.7 *C Strew Speed 50 to 100 *pm Nozzle Temperature 32 to 76.7		93.9	°C	ASTM D1525 ²	
Flammability Nominal Value Test Method Flame Rating HB Unit Test Method Optical Nominal Value Unit Test Method Refractive Index ⁴ 1,490 % ASTM D542 Transmittance (3180 µm) 90.0 % ASTM D1003 Haze (3180 µm) 1.0 % ASTM D1003 Additional Information Nominal Value Test Method ASTM Classification PMMA 0231V3 ASTM D788 Injection Nominal Value Unit Drying Temperature 79.4 *C Porying Time 3.0 to 4.0 hr Rear Temperature 227 to 249 *C Middle Temperature 238 to 260 *C Nozzle Temperature 232 to 254 *C Nozzle Temperature 232 to 254 *C Nozzle Temperature 32 to 76.7 *C Srew Speed 50 to 100 *C NOTE **C 1. Annealing cycle: 4hrs @ 176*F 2.		82.8	°C	ASTM D1525 ³	
Flame Rating HB Ul 94 Optical Nominal Value Unit Test Method Refractive Index ⁴ 1.490 % ASTM D542 Transmittance (3180 µm) 90.0 % ASTM D1003 Haze (3180 µm) < 1.0	Thermal Conductivity	0.22	W/m/K	ASTM C177	
Optical Nominal Value Unit Test Method Refractive Index 4 1.490	Flammability	Nominal Value		Test Method	
Refractive Index ⁴ 1.490 ASTM D542 Transmittance (3180 µm) 90.0 % ASTM D1003 Haze (3180 µm) < 1.0	Flame Rating	НВ		UL 94	
Transmittance (3180 µm) 90.0 % 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 0231V3 ASTM D788 Injection Nominal Value Unit Drying Temperature 79.4 *C Drying Time 3.0 to 4.0 hr Rear Temperature 227 to 249 *C Middle Temperature 238 to 260 *C Front Temperature 232 to 254 *C Nozzle Temperature 232 to 254 *C Processing (Melt) Temp 243 to 266 *C Mold Temperature 3.2 to 76.7 *C Screw Speed 50 to 100 rpm NOTE Annealing cycle: 4hrs @ 176°F 2. Rate A (50°C/h), Loading 1 (10 N) 3. Rate A (50°C/h), Loading 2 (50 N)	Refractive Index ⁴	1.490		ASTM D542	
Additional Information Nominal Value Test Method ASTM Classification PMMA 0231V3 ASTM D788 Injection Nominal Value Unit Drying Temperature 79.4 °C Drying Time 3.0 to 4.0 hr Rear Temperature 227 to 249 °C Middle Temperature 238 to 260 °C Front Temperature 232 to 254 °C Nozzle Temperature 232 to 254 °C Processing (Melt) Temp 243 to 266 °C Mold Temperature 3.2 to 76.7 °C Screw Speed 50 to 100 rpm NOTE Annealing cycle: 4hrs @ 176°F 2. Rate A (50°C/h), Loading 1 (10 N) 3. Rate A (50°C/h), Loading 2 (50 N)	Transmittance (3180 μm)	90.0	%	ASTM D1003	
ASTM Classification PMMA 0231V3 ASTM D788 Injection Nominal Value Unit Drying Temperature 79.4 °C Drying Time 3.0 to 4.0 hr Rear Temperature 227 to 249 °C Middle Temperature 238 to 260 °C Front Temperature 232 to 254 °C Nozzle Temperature 232 to 254 °C Processing (Melt) Temp 243 to 266 °C Mold Temperature 32.2 to 76.7 °C Screw Speed 50 to 100 rpm NOTE Nonealing cycle: 4hrs @ 176°F 2. Rate A (50°C/h), Loading 1 (10 N) 3. Rate A (50°C/h), Loading 2 (50 N)	Haze (3180 μm)	< 1.0	%	ASTM D1003	
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Front Temperature 232 to 254 °C Nozzle Temperature 232 to 254 °C Processing (Melt) Temp 243 to 266 °C Mold Temperature 32.2 to 76.7 °C Screw Speed 50 to 100 rpm NOTE 1. Annealing cycle: 4hrs @ 176°F 2. Rate A (50°C/h), Loading 1 (10 N) Rate A (50°C/h), Loading 2 (50 N)	Rear Temperature	227 to 249	°C		
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NOTE 1. Annealing cycle: 4hrs @ 176°F 2. Rate A (50°C/h), Loading 1 (10 N) 3. Rate A (50°C/h), Loading 2 (50 N)	Mold Temperature	32.2 to 76.7	°C		
1. Annealing cycle: 4hrs @ 176°F 2. Rate A (50°C/h), Loading 1 (10 N) 3. Rate A (50°C/h), Loading 2 (50 N)	Screw Speed	50 to 100	rpm		
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 @ 176°F	Annealing cycle: 4hrs @ 176°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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