

Generic Acrylic (PMMA)

Polymethyl Methacrylate Acrylic

Generic

Message:

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General Information			
Physical	Nominal Value	Unit	Test Method
Specific Gravity			
--	1.14 - 1.20	g/cm ³	ASTM D792
23°C	1.15 - 1.20	g/cm ³	ISO 1183
Apparent Density	0.65 - 0.71	g/cm ³	ASTM D1895
Melt Mass-Flow Rate (MFR)			
230°C/3.8 kg	0.50 - 8.3	g/10 min	ASTM D1238
230°C/3.8 kg	0.30 - 5.6	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (230°C/3.8 kg)	0.623 - 4.80	cm ³ /10min	ISO 1133
Spiral Flow	23.5 - 39.0	cm	
Molding Shrinkage			
Flow: 23°C	0.39 - 0.64	%	ASTM D955
23°C	0.40 - 0.60	%	ISO 294-4
Water Absorption			
23°C, 24 hr	0.29 - 0.42	%	ASTM D570
23°C, 24 hr	0.30 - 1.9	%	ISO 62
Equilibrium, 23°C, 50% RH	0.30 - 0.37	%	ISO 62
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness			
23°C	31 - 105		ASTM D785
23°C	71 - 105		ISO 2039-2
Ball Indentation Hardness	169 - 190	MPa	ISO 2039-1
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
23°C	1270 - 3530	MPa	ASTM D638
23°C	2360 - 3450	MPa	ISO 527-2
Tensile Strength			
Yield, 23°C	37.3 - 73.7	MPa	ASTM D638
Yield, 23°C	37.0 - 83.5	MPa	ISO 527-2
Fracture, 23°C	19.3 - 75.2	MPa	ASTM D638
Fracture, 23°C	49.0 - 77.3	MPa	ISO 527-2
23°C	36.8 - 79.4	MPa	ASTM D638

23°C	35.8 - 80.0	MPa	ISO 527-2
Tensile Elongation			
Yield, 23°C	2.4 - 5.2	%	ASTM D638
Yield, 23°C	3.6 - 25	%	ISO 527-2
Fracture, 23°C	0.20 - 15	%	ASTM D638
Fracture, 23°C	1.8 - 7.2	%	ISO 527-2
Nominal Tensile Strain at Break (23°C)	9.9 - 27	%	ISO 527-2
Flexural Modulus			
23°C	1290 - 3530	MPa	ASTM D790
23°C	1200 - 3500	MPa	ISO 178
Flexural Strength			
23°C	36.5 - 138	MPa	ASTM D790
23°C	49.1 - 132	MPa	ISO 178
Yield, 23°C	63.0 - 137	MPa	ASTM D790
Fracture, 23°C	33.1 - 110	MPa	ASTM D790
Compressive Strength			
23°C	97.4 - 124	MPa	ASTM D695
23°C	41.0 - 117	MPa	ISO 604
Taber Abrasion Resistance (23°C)	0.00100 - 3.81	mg	ASTM D1044
Films	Nominal Value	Unit	Test Method
Tensile Stress (Yield, 23°C)	33.0 - 51.1	MPa	ISO 527-3
Tensile Elongation			ISO 527-3
Yield, 23°C	4.5 - 6.2	%	ISO 527-3
Fracture, 23°C	24 - 50	%	ISO 527-3
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength (23°C)	1.1 - 2.3	kJ/m ²	ISO 179
Charpy Unnotched Impact Strength (23°C)	13 - 25	kJ/m ²	ISO 179
Notched Izod Impact			
23°C	12 - 59	J/m	ASTM D256
23°C	1.0 - 5.9	kJ/m ²	ISO 180
Notched Izod Impact (23°C)	1.50 - 1.60	kJ/m ²	ASTM D256
Unnotched Izod Impact (23°C)	230 - 800	J/m	ASTM D256
Instrumented Dart Impact			
23°C	0.300 - 1.11	J	ASTM D3763
23°C	0.300 - 1.55	J	ISO 6603-2
Dart Drop Impact (23°C)	0.339 - 6.43	J	ASTM D3029
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, not annealed	87.4 - 92.7	°C	ASTM D648
0.45 MPa, not annealed	81.1 - 106	°C	ISO 75-2/B
0.45 MPa, annealed	79.8 - 105	°C	ASTM D648
1.8 MPa, not annealed	72.1 - 105	°C	ASTM D648

1.8 MPa, not annealed	83.9 - 103	°C	ISO 75-2/A
1.8 MPa, annealed	51.7 - 106	°C	ASTM D648
1.8 MPa, annealed	85.7 - 102	°C	ISO 75-2/A
Glass Transition Temperature			
--	15.0 - 105	°C	ASTM E1356
--	108 - 121	°C	ISO 11357-2
--	95.0 - 120	°C	DSC
Vicat Softening Temperature			
--	80.9 - 120	°C	ASTM D1525
--	88.9 - 117	°C	ISO 306
CLTE - Flow			
--	5.9E-5 - 9.0E-5	cm/cm/°C	ASTM D696
--	7.1E-5 - 7.3E-5	cm/cm/°C	ASTM E831
--	5.7E-5 - 1.2E-4	cm/cm/°C	ISO 11359-2
Specific Heat (23°C)	1460 - 2090	J/kg/°C	ASTM C351
Thermal Conductivity (23°C)	0.18 - 0.22	W/m/K	ASTM C177
RTI Elec	50.0 - 90.5	°C	UL 746
RTI Imp	50.0 - 90.5	°C	UL 746
RTI	50.0 - 90.5	°C	UL 746
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity			
--	5.0E+10 - 1.0E+16	ohms	ASTM D257
--	1.0E+13 - 1.0E+16	ohms	IEC 60093
Volume Resistivity			
23°C	5.5E+9 - 2.5E+15	ohms·cm	ASTM D257
23°C	1.0E+13 - 1.0E+15	ohms·cm	IEC 60093
Dielectric Strength			
23°C	15 - 20	kV/mm	ASTM D149
23°C	20 - 24	kV/mm	IEC 60243-1
Dielectric Constant (23°C)	3.06 - 3.92		ASTM D150
Dissipation Factor (23°C)	0.039 - 0.050		ASTM D150
Flammability	Nominal Value	Unit	Test Method
Burning Rate	30	mm/min	ISO 3795
Glow Wire Ignition Temperature	650 - 651	°C	IEC 60695-2-13
Optical	Nominal Value	Unit	Test Method
Refractive Index	1.490 - 1.491		ASTM D542, ISO 489
Transmittance	87.9 - 92.6	%	ASTM D1003
Haze	0.10 - 2.6	%	ASTM D1003
Yellowness Index	-0.35 - 1.1	YI	ASTM D1925
Injection	Nominal Value	Unit	
Drying Temperature	74.9 - 90.3	°C	
Drying Time	2.5 - 5.0	hr	

Suggested Max Moisture	0.099 - 0.10	%
Hopper Temperature	64.5 - 65.0	°C
Rear Temperature	199 - 255	°C
Middle Temperature	220 - 255	°C
Front Temperature	226 - 256	°C
Nozzle Temperature	220 - 245	°C
Processing (Melt) Temp	224 - 271	°C
Mold Temperature	59.8 - 85.8	°C
Injection Pressure	85.5 - 111	MPa
Back Pressure	0.300 - 0.753	MPa
Screw Speed	75 - 76	rpm
Clamp Tonnage	6.8 - 14	kN/cm ²

Injection instructions

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Extrusion	Nominal Value	Unit
Drying Temperature	79.8 - 95.2	°C
Drying Time	2.5 - 3.5	hr
Cylinder Zone 1 Temp.	200 - 210	°C
Cylinder Zone 2 Temp.	215 - 240	°C
Cylinder Zone 3 Temp.	220 - 240	°C
Cylinder Zone 4 Temp.	240	°C
Adapter Temperature	240	°C
Melt Temperature	240 - 245	°C
Die Temperature	239 - 241	°C

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Recommended distributors for this material

Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533

Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China



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