

ULTEM™ RESIN 1000

DESCRIPTION

ULTEM 1000 Resin is an unreinforced amorphous polyetherimide (PEI) resin that may offer a high glass transition temperature (Tg) of 217°C. Features are excellent mechanical, electrical and dimensional properties up to high temperatures. The material may offer very good chemical resistance for an amorphous material and is inherently flame retardant offering UL94 VO and 5V ratings and aerospace FAR 25.853 compliance. The material is RoHS compliant and the natural, uncolored, material is halogen free according to standards IEC 61249-2-21, IPC 4101E and JEDEC JS709B. For colored variants compliance needs to be checked case by case. The base material is transparent amber colored but is also available in custom colors - transparent and opaque.

GENERAL INFORMATION	
Features	Flame Retardant, Transparent, Chemical Resistance, Good Processability, Hydrolytic Stability, Low Creep Sensitivity, Low Smoke and Toxicity, Good dimensional stability, High Heat Resistance, High Stiffness, High Strength, Amorphous, Good metal adhesion, Low Shrinkage, Good Mechanicals in Broad Temperature Range, High electric breakdown strength (BDS), UV-C Resistance, Radiation Resistance (gamma, x-ray), Metallizable, Transparent to Microwave radiation and near IR
Fillers	Unreinforced
Polymer Types	Polyetherimide (PEI)
Processing Techniques	Additive manufacturing, Extrusion Blow Molding, Film Extrusion, Injection Molding, Profile Extrusion, Extrusion, Extrusion, Extrusion, Extrusion, Compounding, Compression molding, Injection compression molding, Foam Extrusion
Regional Availability	Europe, Asia, Americas
INDUSTRY	SUB INDUSTRY
INDUSTRY Automotive	SUB INDUSTRY Heavy Truck, Automotive Interiors, Bus, Automotive Under the Hood
Automotive	Heavy Truck, Automotive Interiors, Bus, Automotive Under the Hood
Automotive Building and Construction	Heavy Truck, Automotive Interiors, Bus, Automotive Under the Hood Outdoor, Lawn and Landscape Ophthalmics, Sport/Leisure, Personal Accessory, Home Appliances, Personal Recreation, Commercial

Defense, Semiconductors, Textile, Servomotor, Electronic Material Handling, Industrial Material Handling,

TYPICAL PROPERTY VALUES

Industrial

Packaging

Mass Transportation

Revision 20210812

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL (1)			
Tensile Stress, yield, 50 mm/min	110	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	6	%	ISO 527
Tensile Strain, break, 50 mm/min	50	%	ISO 527
Tensile Modulus, 1 mm/min	3200	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	160	MPa	ISO 178
Flexural Modulus, 2 mm/min	3300	MPa	ISO 178
Ball Indentation Hardness, H358/30	140	MPa	ISO 2039-1
Hardness, Rockwell M	106	-	ISO 2039-2
Tensile Stress, yld, Type I, 50 mm/min	115	MPa	ASTM D638

Aircraft Interiors, Specialty Vehicles, Rail Rigid Packaging, Consumer Packaging



Tennis Estrain, yiki, Type I, So mmyimin 7 8 ATTM DGIRS Tennis Stress, My, Type I, So mmyimin 10 80 ATTM DGIRS Tennis Stress, My, Type I, So mmyimin 7 8 ATTM DGIRS Tennis Stress, Myd. Type I, So mmymin 6 8 ATTM DGIRS Tennis Strain, Myd. Type I, So mmymin 3350 M90 ATTM DGIRS Tennis Strain, Myd. Type I, So mmymin 166 M90 ATTM DGIRS Reward Modulus, J. So mmymin 100 M90 ATTM DGIRS Reward Modulus, J. So mmymin 100 M90 ATTM DGIRS Reward Modulus, J. So mmymin 100 M90 ATTM DGIRS Reward Modulus, J. So mmymin 100 M90 ATTM DGIRS Reward Modulus, J. So mmymin 100 M90 ATTM DGIRS Reward Modulus, J. So mmymin 100 M90 ATTM DGIRS Reward Modulus, J. So mmymin 100 M90 M90 M90 Reward Modulus, J. So mmymin 100 M90 M90 M90 Reward My L. So Mark M90 M9	PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Tensile Stress, yd., Type l. 5 mm/min 110 MPA ASTM DG38 Tensile Strain, Mr. Type l. 5 mm/min 60 % ASTM DG38 Tensile Strain, Nr. Type l. 5 mm/min 60 % ASTM DG38 Tensile Strain, Nr. Type l. 5 mm/min 3350 MPA ASTM DG38 Tensile Strain, Nr. Type l. 5 mm/min 3350 MPA ASTM DG38 Hexural Modulus, 3.3 mm/min, 50 mm span 3200 MPA ASTM DG90 Hexural Modulus, 2.6 mm/min, 100 mm span 160 MPA ASTM DG90 Herural Modulus, 2.6 mm/min, 100 mm span 160 MPA ASTM DG90 Hardness, Rockwell M 109 - ASTM DG90 Bardness,	Tensile Strain, yld, Type I, 50 mm/min	7	%	ASTM D638
Ternile Strain, MA, Type I, 5 mm/min 7 85 ASTM D638 Ternile Strain, Inkr, Type I, 5 mm/min 60 8 ATTM D638 Ternile Modulus, Type I, 5 mm/min 3350 MPa ATTM D638 Flexural Stress, yid, 1.3 mm/min, 50 mm span 165 MPa ATTM D790 Flexural Modulus, 1.3 mm/min, 50 mm span 160 MPa ATTM D790 Resural Stress, yid, 2.6 mm/min, 100 mm span 3400 MPa ATTM D780 Resural Modulus, 2.6 mm/min, 100 mm span 130 mg/l 1000 ATTM D780 Resural Modulus, 2.6 mm/min, 100 mm span 130 mg/l 1000 ATTM D780 Resural Modulus, 2.6 mm/min, 100 mm span 130 MPa ATTM D780 Resural Modulus, 2.6 mm/min, 100 mm span 130 Mpl ATTM D780 Resural Modulus, 2.6 mm/min, 100 mm span 130 Mpl ATTM D780 Blanch 130 Mpl ATTM D780 Blanch 130 Mpl Mpl ATTM D780 Blanch 240 Mpl S0 180 110 Mpl Look Impact, notched 80°10°4 sp-62	Tensile Strain, brk, Type I, 50 mm/min	60	%	ASTM D638
Ternile Strain, birk, Type 1, 5 mm/min 60 % ASTM D6818 Ternile Modulus, 5 mm/min 3350 MR0 ASTM D6780 Resural Stress, Vol. 1, 3 mm/min, 50 mm span 160 MR0 ASTM D790 Resural Modulus, 1,3 mm/min, 50 mm span 160 MR0 ASTM D790 Resural Modulus, 1,3 mm/min, 100 mm span 160 MR0 ASTM D780 Resural Modulus, 2,5 mm/min, 100 mm span 160 MR0 ASTM D780 Resural Modulus, 2,5 mm/min, 100 mm span 10	Tensile Stress, yld, Type I, 5 mm/min	110	MPa	ASTM D638
Testile Modulus, S mirjimi 3350 MPa ASTM D638 Bleaural Striess, vid. 1.3 mirjimin, 50 mm span 165 MPa ASTM D790 Bleaural Striess, vid. 2.6 mirjimin, 100 mm span 160 MPa ASTM D790 Bleaural Modulus, 2.6 mirjimin, 100 mm span 160 MPa ASTM D790 Hardness, Rockell M 190 - 10 MRIN 75 Taber Abrasion, CS-17, 1kg 10 mg/1000cy ASTM D1044 Ramper, 10 William MIRIA SD 1801 U Izod Impact, unnotched 80°10°4 +23°C NB Miria SD 1801 U Izod Impact, unnotched 80°10°4 +23°C 6 Miria SD 1801 U Izod Impact, unnotched 80°10°4 +23°C 6 Miria SD 1801 U Izod Impact, notched 80°10°4 +23°C 6 Miria SD 1801 U Charpy 23°C, Vracth Edgew 80°10°4 sp-62mm 4 Miria SD 1801 U Charpy 23°C, Vracth Edgew 80°10°4 sp-62mm 4 Miria ASTM D481 E Izod Impact, notched, 23°C 150 Miria ASTM D481 E Izod Impact, notched, 23°C 53 <td>Tensile Strain, yld, Type I, 5 mm/min</td> <td>7</td> <td>%</td> <td>ASTM D638</td>	Tensile Strain, yld, Type I, 5 mm/min	7	%	ASTM D638
Flexural Stress, yid. 1.3 mm/min, 50 mm span 165 MPa ASTM D790 Flexural Modulus, 1.3 mm/min, 50 mm span 3200 MPa ASTM D790 Flexural Modulus, 2.6 mm/min, 100 mm span 3400 MPa ASTM D790 Flexural Modulus, 2.6 mm/min, 100 mm span 1400 MPa ASTM D780 Hardness, Rockwell M 109 - ASTM D780 Hardness, Rockwell M 109 - ASTM D780 Horpact, 100 W W W MPACT 17 W W W Izod Impact, unnotched 80°10°4-23°C 88 Um² 80 180/10 Izod Impact, unnotched 80°10°4-23°C 6 Um² 80 180/10 Izod Impact, unnotched, 30°C 6 Um² 80 180/10 Izod Impact, ontoched 80°10°4 spe2mm 4 Um² 80 180/10 Izod Impact, ontoched, 23°C 1800 Um² ASTM D4812 Izod Impact, ontoched, 30°C 190 1/m ASTM D256 Izod Impact, ontoched, 30°C 30 1/m ASTM D256 Izod Impact, ontoched,	Tensile Strain, brk, Type I, 5 mm/min	60	%	ASTM D638
Flexural Modulus, 1.3 mm/min, 100 mm span 3200 MPa ASTM D790 Flexural Modulus, 2.6 mm/min, 100 mm span 160 MPa ASTM D790 Beavard Modulus, 2.6 mm/min, 100 mm span 109 - ASTM D785 Taber Abrasion, CS-17, 1 kg 10 mg/1000cy ASTM D785 Taber Abrasion, CS-17, 1 kg 10 kl/m² SO 180/10 Lood Impact, unnotched 80°10°4 +23°C NB kl/m² SO 180/10 Lood Impact, unnotched 80°10°4 +23°C 6 kl/m² SO 180/10 Lood Impact, onched 80°10°4 +23°C 6 kl/m² SO 180/10 Lood Impact, onched 80°10°4 +23°C 6 kl/m² SO 180/10 Lood Impact, onched 80°10°4 +23°C 6 kl/m² SO 180/10 Lood Impact, onched 80°10°4 +23°C 6 kl/m² SO 180/10 Charpy 23°C, Vonche Edgew 80°10°4 +23°C 3 kl/m² SO 179/16 Charpy 23°C, Vonche Edgew 80°10°4 speachm 4 kl/m² SO 179/16 Lood Impact, unnotched, 23°C 3 l/m ASTM D4812 Lood Impact, unnotched, 23°C	Tensile Modulus, 5 mm/min	3350	MPa	ASTM D638
Flexural Stress, yild, 2.6 mm/min, 100 mm span 160 MP3 ASTM 0790 Flexural Modulus, 2.6 mm/min, 100 mm span 3400 MP3 ASTM 0785 Hadriness, Rockwell M 19 - ASTM 10785 Taber Abrasion, CS-17, 1 kg 10 mg/1000cy ASTM 10785 MAPACT II Used impact, unnotched 80°10°4 +23°C 88 kl/m² S0 180/10 Bod impact, unnotched 80°10°4 +23°C 6 kl/m² S0 180/10 Bod impact, notched 80°10°4 +23°C 6 kl/m² S0 180/10 Bod impact, notched 80°10°4 +23°C 8 kl/m² S0 180/10 Bod impact, notched 80°10°4 +23°C 6 kl/m² S0 179/10 Charpy 23°C, Vnotch Edgew 80°10°4 sp=62mm 4 kl/m² S0 179/10 Charpy 23°C, Vnotch Edgew 80°10°4 sp=62mm 1 yl/m² ASTM D4812 Lood impact, notched, 23°C 154 yl/m² ASTM D4812 Lood impact, notched, 23°C 35 yl/m² ASTM D4812 Lood impact, notched, 23°C 36 yl/m² ASTM D4812 Lood impact, notched,	Flexural Stress, yld, 1.3 mm/min, 50 mm span	165	MPa	ASTM D790
Flexural Modulus, 2.6 mm/min, 100 mm span 3400 Mrea ASTM D785 Hardness, Rockwell M 109 - ASTM D785 Taber Abrison, CS-17, 1 kg 10 mg/1000xy ASTM D785 MMPACT ************************************	Flexural Modulus, 1.3 mm/min, 50 mm span	3200	MPa	ASTM D790
Hardness, Rockwell M 109	Flexural Stress, yld, 2.6 mm/min, 100 mm span	160	MPa	ASTM D790
Braber Abrasion. CS-17, 1 kg 10 mg/locy ASTM D1044 IMPACT ¹¹ Impact, unnotched 80°10°4-23°C N8 kl/m² ISO 180/10 Izod Impact, unnotched 80°10°4-23°C 88 kl/m² ISO 180/10 Izod Impact, unotched 80°10°4-23°C 6 kl/m² ISO 180/10 Izod Impact, unotched 80°10°4-23°C 6 kl/m² ISO 180/10 Izod Impact, unotched 80°10°4-23°C 4 kl/m² ISO 180/10 Charpy 23°C, Vnotch Edgew 80°10°4 sp-62mm 4 kl/m² ISO 179/10 Charpy 23°C, Vnotch Edgew 80°10°4 sp-62mm 4 kl/m² ISO 179/10 Izod Impact, unnotched, 23°C 1800 J/m ASTM D412 Izod Impact, konched, 23°C 33 J/m ASTM D425 Izod Impact, notched, 30°C 33 J/m ASTM D256 Izod Impact, konched, 23°C 30 J/m ASTM D256 Izod Impact, konched, 30°C 30 J/m ASTM D256 Izod Impact, konched, 30°C 30 J/m ASTM D256 Izod Impact, konched, 33°C 30 3	Flexural Modulus, 2.6 mm/min, 100 mm span	3400	MPa	ASTM D790
IMPACT ⁽¹⁾ Ized Impact, unnotched 80°10°4 +23°C NB kJ m² ISO 180/10 Ized Impact, unnotched 80°10°4 +23°C NB kJ m² ISO 180/10 Ized Impact, unnotched 80°10°4 +30°C 6 kJ m² ISO 180/14 Ized Impact, notched 80°10°4 +30°C 6 kJ m² ISO 180/14 Ized Impact, notched 80°10°4 *9°E3cm 4 kJ m² ISO 179/16A Charpy 23°C, Vnotch Edgew 80°10°4 *p=62cm 4 kJ m² ISO 179/16A Charpy 30°C, Vnotch Edgew 80°10°4 *p=62cm 4 kJ m² ISO 179/16A Charpy 30°C, Vnotch Edgew 80°10°4 *p=62cm 4 kJ m² ISO 179/16A Charpy 30°C, Vnotch Edgew 80°10°4 *p=62cm 1800 J m ASTM 04812 Ized Impact, unnotched, 23°C 1800 J m ASTM 04812 Ized Impact, notched, 23°C 53 J m ASTM 0286 Ized Impact, notched, 23°C 53 J m ASTM 0286 Ized Impact, Notched, 32°m 1335 J m ASTM 0286 Ized Impact, Notched, 32°m 1350 S C ISO 75/8 <tr< td=""><td>Hardness, Rockwell M</td><td>109</td><td>-</td><td>ASTM D785</td></tr<>	Hardness, Rockwell M	109	-	ASTM D785
tzod Impact, unnotched 80°10°4 +23°C N8 kJ m² ISO 180/10 Izod Impact, unnotched 80°10°4 -30°C N8 kJ m² ISO 180/10 Izod Impact, notched 80°10°4 -30°C 6 kJ m² ISO 180/14 Exod Impact, notched 80°10°4 sp=62mm 4 kJ m² ISO 179/1eA Charpy -30°C, V-notch Edgew 80°10°4 sp=62mm 4 kJ m² ISO 179/1eA Exod Impact, unnotched, 23°C 1800 JJm ASTM D4812 Izod Impact, unnotched, 23°C 1540 JJm ASTM D256 Izod Impact, notched, 30°C 53 JJm ASTM D256 Izod Impact, Notched, 30°C 50 JJm ASTM D256 Izod Impact, Notched, 30°C 50 JJm ASTM D256 Izod Impact, Reverse Notched, 3.2 mm 335 JJm ASTM D256 Izod Impact, Reverse Notched, 3.2 mm 20 "C ISO 75/8 Izod Impact, Reverse Notched, 3.2 mm 20 "C ISO 75/8 Izod Impact, Pack Solvenia Jame, Salve Solvenia	Taber Abrasion, CS-17, 1 kg	10	mg/1000cy	ASTM D1044
Izod Impact, notched 80°10°4 -23°C NB M/m² ISO 180/11 Izod Impact, notched 80°10°4 -23°C 6 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 -23°C 4 kJ/m² ISO 180/1A Charpy 23°C, V-notch Edgew 80°10°4 sp=62mm 4 kJ/m² ISO 179/1eA Charpy 3°C, V-notch Edgew 80°10°4 sp=62mm 4 kJ/m² ISO 179/1eA Izod Impact, unnotched, 23°C 1800 J/m ASTM D4812 Izod Impact, unnotched, 30°C 53 J/m ASTM D256 Izod Impact, notched, 30°C 50 50 50 50	IMPACT (1)			
Ized Impact, notched 80°10°4*23°C 6 M/m² ISO 180/1A Ized Impact, notched 80°10°4*30°C 6 M/m² ISO 180/1A Charpy 23°C, Vnotch Edgew 80°10°4*sp=62mm 4 M/m² ISO 179/1eA Lood Impact, unnotched, 23°C 1800 I/m ASTM D4812 Izod Impact, unnotched, 23°C 1800 I/m ASTM D4812 Izod Impact, notched, 23°C 3 I/m ASTM D4812 Izod Impact, notched, 23°C 3 I/m ASTM D256 Izod Impact, notched, 23°C 3 I/m ASTM D256 Izod Impact, everse Notched, 3.2 mm 1335 I/m ASTM D256 Izod Impact, everse Notched, 3.2 mm 335 I/m ASTM D256 Gardner, 23°C 36 J ASTM D256 HDTJ/4I, 0.45 MPa Flatw 80°10°4 sp=64mm 290 °C ISO 75/8I HDTJ/4I, 1.8 MPa Flatw 80°10°4 sp=64mm 215 °C ISO 306 Vica S oftening Temp, Rate B/50 215 °C ISO 306 Vica S oftening Temp, Rate B/50 21 °C ISO 306	Izod Impact, unnotched 80*10*4 +23°C	NB	kJ/m²	ISO 180/1U
Lood Impact, notched 80°10°4-30°C 6 kJ m² ISO 180/1A Charpy 23°C, Vnotcht Edgew 80°10°4 sp=62mm 4 kJ m² ISO 179/1eA Charpy -30°C, V-notcht Edgew 80°10°4 sp=62mm 4 kJ m² ISO 179/1eA Lood Impact, unnotched, 23°C 1800 J/m ASTM D4812 Izod Impact, unnotched, 23°C 1540 J/m ASTM D256 Izod Impact, notched, 30°C 53 J/m ASTM D256 Izod Impact, Reverse Notched, 3.2 mm 1335 J/m ASTM D256 Izod Impact, Reverse Notched, 3.2 mm 36 J ASTM D256 Izod Impact, Reverse Notched, 3.2 mm 335 J/m ASTM D256 Izod Impact, Reverse Notched, 3.2 mm 36 y ASTM D256 Izod Mapact, Reverse Notched, 3.2 mm 29 °C ISO 75/Bf Izod Impact, Reverse Notched, 3.2 mm 29 °C ISO 75/Bf Izod Mapact, As Mapa Flatw 80°10°4 sp=64mm 29 °C ISO 75/Bf HDT/Bf, 0.45 MPa Flatw 80°10°4 sp=64mm 29 °C ISO 306 Vicat Softening Temp, Rate 8/50	Izod Impact, unnotched 80*10*4 -30°C	NB	kJ/m²	ISO 180/1U
Charpy 23°C, V-notch Edgew 80'10'4 sp=62mm 4 kJm² ISO 179/1eA Charpy-30°C, V-notch Edgew 80'10'4 sp=62mm 4 kJm² ISO 179/1eA Izod Impact, unnotched, 23°C 1800 JJm ASTM D4812 Izod Impact, unnotched, 23°C 1540 JJm ASTM D256 Izod Impact, notched, 32°C 53 JJm ASTM D256 Izod Impact, notched, 32°C 50 JJm ASTM D256 Izod Impact, Reverse Notched, 3.2 mm 1335 JJm ASTM D256 Gardner, 23°C 36 J m ASTM D256 Itoral Impact, Notched, 3.2 mm 335 J m ASTM D256 Gardner, 23°C 36 J m ASTM D256 Itoral Impact, Notched, 3.2 mm 209 °C S0 75/6f HDT/81, 0.4 SMPa Flatw 80'10'4 sp=64mm 192 °C ISO 75/6f HDT/81, 1.8 MPa Flatw 80'10'4 sp=64mm 192 °C ISO 306 Vicat Softening Temp, Rate 8/50 215 °C ISO 306 Vicat Softening Temp, Rate 8/10 21 °C ISO 306	Izod Impact, notched 80*10*4 +23°C	6	kJ/m²	ISO 180/1A
Charpy-30°C, V-notch Edgew 80°10°4 sp=62mm 4 ki/m² ISO 179/1eA Izod Impact, unnotched, 23°C 1800 J/m ASTM D4812 Izod Impact, unnotched, 30°C 1540 J/m ASTM D4812 Izod Impact, notched, 30°C 53 J/m ASTM D256 Izod Impact, notched, 30°C 50 J/m ASTM D256 Izod Impact, Reverse Notched, 32 mm 1335 J/m ASTM D3029 Gardner, 23°C 36 J ASTM D3029 THERMAL*** V STM D3029 HDT/Bf, 0.45 MPa Flatw 80°10°4 sp=64mm 209 °C ISO 75/Bf HDT/Af, 1.8 MPa Flatw 80°10°4 sp=64mm 192 °C ISO 306 Vicat Softening Temp, Rate A/50 215 °C ISO 306 Vicat Softening Temp, Rate B/50 211 °C ISO 306 Vicat Softening Temp, Rate B/120 212 °C ISO 306 CTE, 20°C to 150°C, flow 5.2E-05 1/°C ISO 306 CTE, 20°C to 150°C, flow 2.2E-05 1/°C ISO 305 Ball Persuur Test, 125°C +/-2°C </td <td>Izod Impact, notched 80*10*4 -30°C</td> <td>6</td> <td>kJ/m²</td> <td>ISO 180/1A</td>	Izod Impact, notched 80*10*4 -30°C	6	kJ/m²	ISO 180/1A
Izod Impact, unnotched, 23°C 1800 1/m ASTM D4812 Izod Impact, unnotched, -30°C 1540 1/m ASTM D4812 Izod Impact, notched, -30°C 53 1/m ASTM D256 Izod Impact, notched, -30°C 50 1/m ASTM D256 Izod Impact, Reverse Notched, 3.2 mm 36 1/m ASTM D256 Izod Impact, Reverse Notched, 3.2 mm 36 1 ASTM D256 Izod Garder, 23°C 36 1 ASTM D256 Izod Garder, 23°C 36 1 ASTM D256 IZOG Carder, 23°C 36 1 ASTM D3029 THERMAL!** 1 ASTM D3029 ************************************	Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	4	kJ/m²	ISO 179/1eA
Izod Impact, unnotched, 30°C 1540 1/m ASTM D4812 Izod Impact, notched, 23°C 53 1/m ASTM D256 Izod Impact, notched, 30°C 50 1/m ASTM D256 Izod Impact, Reverse Notched, 3.2 mm 1335 1/m ASTM D256 Gardner, 23°C 36 1 /m ASTM D256 THERMAL ¹¹ ************************************	Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	4	kJ/m²	ISO 179/1eA
Izod Impact, notched, 23°C 53 I/m ASTM D256 Izod Impact, notched, -30°C 50 I/m ASTM D256 Izod Impact, Reverse Notched, 3.2 mm 1335 J/m ASTM D256 Gardner, 23°C 36 J m ASTM D3029 THERMAL************************************	Izod Impact, unnotched, 23°C	1800	J/m	ASTM D4812
Izod Impact, notched, -30°C 50 J/m ASTM D256 Izod Impact, Reverse Notched, 3.2 mm 1335 J/m ASTM D256 Gardner, 23°C 36 J m ASTM D3029 THERMAL III HDT/ Bf. 0.45 MPa Flatw 80°10°4 sp=64mm 209 °C ISO 75/Bf HDT/ Af. 1.8 MPa Flatw 80°10°4 sp=64mm 192 °C ISO 75/M Vicat Softening Temp, Rate A/50 215 °C ISO 306 Vicat Softening Temp, Rate B/120 212 °C ISO 306 CET, 20°C to 150°C, folow 5.26-05 1/°C ISO 11359-2 GET, 20°C to 150°C, folow 5.26-05 1/°C ISO 11359-2 Ball Pressure Test, 125°C +/- 2°C PASS - IEC 60695-10-2 Thermal Conductivity 0.22 W/m.°C ASTM D648 HDT, 0.45 MPa, 6.4 mm, unannealed 201 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 207 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 211 °C ASTM D648 Vicat Softening Temp, Rate	Izod Impact, unnotched, -30°C	1540	J/m	ASTM D4812
Lood Impact, Reverse Notched, 3.2 mm 1335 J/m ASTM D256 Gardner, 23°C 36 J ASTM D3029 THERMAL (1) HDT/Bf, 0.45 MPa Flatw 80°10°4 sp=64mm 209 °C ISO 75/Bf HDT/Af, 1.8 MPa Flatw 80°10°4 sp=64mm 192 °C ISO 306 Vicat Softening Temp, Rate A/50 215 °C ISO 306 Vicat Softening Temp, Rate B/50 211 °C ISO 306 CTE, 20°C to 150°C, flow 5.2E-05 1/°C ISO 11359-2 CTE, 20°C to 150°C, flow 5.2E-05 1/°C ISO 11359-2 Ball Pressure Test, 125°C */- 2°C PASS - IEC 60695-10-2 Thermal Conductivity 0.22 W/m.°C ASTM D648 HDT, 0.45 MPa, 6.4 mm, unannealed 201 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 190 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 190 °C ASTM D648 Vicat Softening Temp, Rate B/50 211 °C ASTM D648 Vicat Softening Temp, Rate B/50 21/°C<	Izod Impact, notched, 23°C	53	J/m	ASTM D256
Gardner, 23°C 36 J ASTM D3029 THERMAL ⁽¹⁾ HDT/Bf, 0.45 MPa Flatw 80°10°4 sp=64mm 209 °C ISO 75/Bf HDT/Af, 1.8 MPa Flatw 80°10°4 sp=64mm 192 °C ISO 306 Vicat Softening Temp, Rate A/50 215 °C ISO 306 Vicat Softening Temp, Rate B/50 211 °C ISO 306 Vicat Softening Temp, Rate B/120 212 °C ISO 306 CTE, 20°C to 150°C, flow 5.2E-05 1/°C ISO 11359-2 CTE, 20°C to 150°C, xflow 5.2E-05 1/°C ISO 11359-2 Ball Pressure Test, 125°C +/- 2°C PASS - IEC 60695-10-2 Thermal Conductivity 0.22 W/m°C SO 8302 HDT, 0.45 MPa, 6.4 mm, unannealed 201 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 207 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 190 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 190 °C ASTM D648 Vicat Softening Temp, Rate B/50 211	Izod Impact, notched, -30°C	50	J/m	ASTM D256
THERMAL ⁽¹⁾ HDT /Bt, 0.45 MPa Flatw 80°10°4 sp=64mm 209 °C ISO 75/Bf HDT /At, 1.8 MPa Flatw 80°10°4 sp=64mm 192 °C ISO 75/Af Vicat Softening Temp, Rate A/50 215 °C ISO 306 Vicat Softening Temp, Rate B/50 211 °C ISO 306 Vicat Softening Temp, Rate B/120 212 °C ISO 306 CTE, -20°C to 150°C, flow 5.2E-05 1/°C ISO 11359-2 Ball Pressure Test, 125°C +/- 2°C PASS - IEC 60695-10-2 Thermal Conductivity 0.22 W/m°C ISO 8302 HDT, 0.45 MPa, 6.4 mm, unannealed 201 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 207 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 190 °C ASTM D648 Vicat Softening Temp, Rate B/50 211 °C ASTM D648 Vicat Softening Temp, Rate B/50 211 °C ASTM D648 Vicat Softening Temp, Rate B/50 211 °C ASTM E831 CTE, -20°C to 150°C, flow	Izod Impact, Reverse Notched, 3.2 mm	1335	J/m	ASTM D256
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm 209 °C ISO 75/Bf HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm 192 °C ISO 75/Af Vicat Softening Temp, Rate A/50 215 °C ISO 306 Vicat Softening Temp, Rate B/50 211 °C ISO 306 Vicat Softening Temp, Rate B/120 212 °C ISO 306 CTE, -20°C to 150°C, flow 5.2E-05 1/°C ISO 11359-2 Ball Pressure Test, 125°C +/-2°C PASS - IEC 60695-10-2 Thermal Conductivity 0.22 W/m°C ISO 8302 HDT, 0.45 MPa, 6.4 mm, unannealed 201 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 207 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 190 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 190 °C ASTM D648 Vicat Softening Temp, Rate B/50 211 °C ASTM D648 Vicat Softening Temp, Rate B/50 5.6E-05 1/°C ASTM E831 CTE, -20°C to 150°C, xflow 5.4E-05 1/°C ASTM	Gardner, 23°C	36	1	ASTM D3029
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm 192 °C ISO 75/Af Vicat Softening Temp, Rate A/50 215 °C ISO 306 Vicat Softening Temp, Rate B/50 211 °C ISO 306 Vicat Softening Temp, Rate B/120 212 °C ISO 306 CTE, -20°C to 150°C, flow 5.2E-05 1/°C ISO 11359-2 CTE, -20°C to 150°C, xflow 5.2E-05 1/°C ISO 11359-2 Ball Pressure Test, 125°C +/- 2°C PASS - IEC 60095-10-2 Thermal Conductivity 0.22 W/m°C ISO 8302 HDT, 0.45 MPa, 6.4 mm, unannealed 201 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 207 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 190 °C ASTM D648 Wirat Softening Temp, Rate B/50 211 °C ASTM D648 Vicat Softening Temp, Rate B/50 1/°C ASTM D648 CTE, -20°C to 150°C, flow 5.4E-05 1/°C ASTM E831 CTE, -20°C to 150°C, xflow 5.4E-05 1/°C ASTM C177	THERMAL (1)			
Vicat Softening Temp, Rate A/50 215 °C ISO 306 Vicat Softening Temp, Rate B/50 211 °C ISO 306 Vicat Softening Temp, Rate B/120 212 °C ISO 306 CTE, -20°C to 150°C, flow 5.2E-05 1/°C ISO 11359-2 CTE, -20°C to 150°C, xflow 5.2E-05 1/°C ISO 11359-2 Ball Pressure Test, 125°C +/- 2°C PASS "C IEC 60695-10-2 Thermal Conductivity 0.22 W/m°C ISO 8302 HDT, 0.45 MPa, 6.4 mm, unannealed 201 °C ASTM D648 HDT, 0.45 MPa, 3.2 mm, unannealed 207 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 190 °C ASTM D648 Vicat Softening Temp, Rate B/50 211 °C ASTM D648 Vicat Softening Temp, Rate B/50 1/°C ASTM D648 CTE, -20°C to 150°C, flow 5.6E-05 1/°C ASTM E831 CTE, -20°C to 150°C, flow 5.4E-05 1/°C ASTM E831 Thermal Conductivity 0.22 W/m°C ASTM C177 Rel	HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	209	°C	ISO 75/Bf
Vicat Softening Temp, Rate B/50 211 °C ISO 306 Vicat Softening Temp, Rate B/120 212 °C ISO 306 CTE, -20°C to 150°C, flow 5.2E-05 1/°C ISO 11359-2 CTE, -20°C to 150°C, xflow 5.2E-05 1/°C ISO 11359-2 Ball Pressure Test, 125°C +/- 2°C PASS - IEC 60695-10-2 Thermal Conductivity 0.22 W/m.°C ISO 8302 HDT, 0.45 MPa, 6.4 mm, unannealed 210 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 201 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 207 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 190 °C ASTM D648 Vicat Softening Temp, Rate B/50 211 °C ASTM D648 CTE, -20°C to 150°C, flow 5.6E-05 1/°C ASTM E831 CTE, -20°C to 150°C, xflow 5.4E-05 1/°C ASTM E831 Thermal Conductivity 0.22 W/m.°C ASTM C177 Relative Temp Index, Elec (2) 1/70 MSTM C174	HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	192	°C	ISO 75/Af
Vicat Softening Temp, Rate B/120 212 °C ISO 306 CTE, -20°C to 150°C, flow 5.2E-05 1/°C ISO 11359-2 CTE, -20°C to 150°C, xflow 5.2E-05 1/°C ISO 11359-2 Ball Pressure Test, 125°C +/- 2°C PASS - IEC 60695-10-2 Thermal Conductivity 0.22 W/m-°C ISO 8302 HDT, 0.45 MPa, 6.4 mm, unannealed 210 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 201 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 207 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 190 °C ASTM D648 Vicat Softening Temp, Rate B/50 211 °C ASTM D1525 CTE, -20°C to 150°C, flow 5.6E-05 1/°C ASTM E831 CTE, -20°C to 150°C, xflow 5.4E-05 1/°C ASTM E831 Thermal Conductivity 0.22 W/m-°C ASTM C177 Relative Temp Index, Elec (2) 1/0 UL 746B	Vicat Softening Temp, Rate A/50	215	°C	ISO 306
CTE, -20°C to 150°C, flow 5.2E-05 1/°C ISO 11359-2 CTE, -20°C to 150°C, xflow 5.2E-05 1/°C ISO 11359-2 Ball Pressure Test, 125°C + /- 2°C PASS - IEC 60695-10-2 Thermal Conductivity 0.22 W/m°C ISO 8302 HDT, 0.45 MPa, 6.4 mm, unannealed 210 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 201 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 207 °C ASTM D648 HDT, 1.82 MPa, 3.2mm, unannealed 190 °C ASTM D648 Vicat Softening Temp, Rate B/50 211 °C ASTM D648 CTE, -20°C to 150°C, flow 5.6E-05 1/°C ASTM E831 CTE, -20°C to 150°C, xflow 5.4E-05 1/°C ASTM E831 Thermal Conductivity 0.22 W/m°C ASTM C177 Relative Temp Index, Elec (2) 1/70 °C UL 746B	Vicat Softening Temp, Rate B/50	211	°C	ISO 306
CTE, -20°C to 150°C, xflow 5.2E-05 1/°C ISO 11359-2 Ball Pressure Test, 125°C +/- 2°C PASS - IEC 60695-10-2 Thermal Conductivity 0.22 W/m-°C ISO 8302 HDT, 0.45 MPa, 6.4 mm, unannealed 210 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 201 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 207 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 190 °C ASTM D648 Vicat Softening Temp, Rate B/50 211 °C ASTM D1525 CTE, -20°C to 150°C, flow 5.6E-05 1/°C ASTM E831 CTE, -20°C to 150°C, xflow 5.4E-05 1/°C ASTM E831 Thermal Conductivity 0.22 W/m-°C ASTM C177 Relative Temp Index, Elec (2) 170 °C UL 746B	Vicat Softening Temp, Rate B/120	212	°C	ISO 306
Ball Pressure Test, 125°C + /- 2°C PASS - IEC 60695-10-2 Thermal Conductivity 0.22 W/m°C ISO 8302 HDT, 0.45 MPa, 6.4 mm, unannealed 210 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 201 °C ASTM D648 HDT, 0.45 MPa, 3.2 mm, unannealed 207 °C ASTM D648 HDT, 1.82 MPa, 3.2mm, unannealed 190 °C ASTM D648 Vicat Softening Temp, Rate B/50 211 °C ASTM D1525 CTE, -20°C to 150°C, flow 5.6E-05 1/°C ASTM E831 CTE, -20°C to 150°C, xflow 5.4E-05 1/°C ASTM E831 Thermal Conductivity 0.22 W/m°C ASTM C177 Relative Temp Index, Elec (2) 170 °C UL 746B	CTE, -20°C to 150°C, flow	5.2E-05	1/°C	ISO 11359-2
Thermal Conductivity 0.22 W/m°C ISO 8302 HDT, 0.45 MPa, 6.4 mm, unannealed 210 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 201 °C ASTM D648 HDT, 0.45 MPa, 3.2 mm, unannealed 207 °C ASTM D648 HDT, 1.82 MPa, 3.2mm, unannealed 190 °C ASTM D648 Vicat Softening Temp, Rate B/50 211 °C ASTM D1525 CTE, -20°C to 150°C, flow 5.6E-05 1/°C ASTM E831 CTE, -20°C to 150°C, xflow 5.4E-05 1/°C ASTM E831 Thermal Conductivity 0.22 W/m°C ASTM C177 Relative Temp Index, Elec (2) 170 °C UL 746B	CTE, -20°C to 150°C, xflow	5.2E-05	1/°C	ISO 11359-2
HDT, 0.45 MPa, 6.4 mm, unannealed 210 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 201 °C ASTM D648 HDT, 0.45 MPa, 3.2 mm, unannealed 207 °C ASTM D648 HDT, 1.82 MPa, 3.2mm, unannealed 190 °C ASTM D648 Vicat Softening Temp, Rate B/50 211 °C ASTM D1525 CTE, -20°C to 150°C, flow 5.6E-05 1/°C ASTM E831 CTE, -20°C to 150°C, xflow 5.4E-05 1/°C ASTM E831 Thermal Conductivity 0.22 W/m-°C ASTM C177 Relative Temp Index, Elec (2) 170 °C UL 746B	Ball Pressure Test, 125°C +/- 2°C	PASS	-	IEC 60695-10-2
HDT, 1.82 MPa, 6.4 mm, unannealed 201 °C ASTM D648 HDT, 0.45 MPa, 3.2 mm, unannealed 207 °C ASTM D648 HDT, 1.82 MPa, 3.2mm, unannealed 190 °C ASTM D648 Vicat Softening Temp, Rate B/50 211 °C ASTM D1525 CTE, -20°C to 150°C, flow 5.6E-05 1/°C ASTM E831 CTE, -20°C to 150°C, xflow 5.4E-05 1/°C ASTM E831 Thermal Conductivity 0.22 W/m-°C ASTM C177 Relative Temp Index, Elec (2) 170 °C UL 746B	Thermal Conductivity	0.22	W/m-°C	ISO 8302
HDT, 0.45 MPa, 3.2 mm, unannealed 207 °C ASTM D648 HDT, 1.82 MPa, 3.2mm, unannealed 190 °C ASTM D648 Vicat Softening Temp, Rate B/50 211 °C ASTM D1525 CTE, -20°C to 150°C, flow 5.6E-05 1/°C ASTM E831 CTE, -20°C to 150°C, xflow 5.4E-05 1/°C ASTM E831 Thermal Conductivity 0.22 W/m-°C ASTM C177 Relative Temp Index, Elec (2) 170 °C UL 746B	HDT, 0.45 MPa, 6.4 mm, unannealed	210	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed 190 °C ASTM D648 Vicat Softening Temp, Rate B/50 211 °C ASTM D1525 CTE, -20°C to 150°C, flow 5.6E-05 1/°C ASTM E831 CTE, -20°C to 150°C, xflow 5.4E-05 1/°C ASTM E831 Thermal Conductivity 0.22 W/m-°C ASTM C177 Relative Temp Index, Elec (2) 170 °C UL 746B	HDT, 1.82 MPa, 6.4 mm, unannealed	201	°C	ASTM D648
Vicat Softening Temp, Rate B/50 211 °C ASTM D1525 CTE, -20°C to 150°C, flow 5.6E-05 1/°C ASTM E831 CTE, -20°C to 150°C, xflow 5.4E-05 1/°C ASTM E831 Thermal Conductivity 0.22 W/m-°C ASTM C177 Relative Temp Index, Elec (2) 170 °C UL 746B	HDT, 0.45 MPa, 3.2 mm, unannealed	207	°C	ASTM D648
CTE, -20°C to 150°C, flow 5.6E-05 1/°C ASTM E831 CTE, -20°C to 150°C, xflow 5.4E-05 1/°C ASTM E831 Thermal Conductivity 0.22 W/m-°C ASTM C177 Relative Temp Index, Elec (2) 170 °C UL 746B	HDT, 1.82 MPa, 3.2mm, unannealed	190		ASTM D648
CTE, -20°C to 150°C, xflow 5.4E-05 1/°C ASTM E831 Thermal Conductivity 0.22 W/m-°C ASTM C177 Relative Temp Index, Elec (2) 170 °C UL 746B		211	°C	ASTM D1525
Thermal Conductivity 0.22 W/m-°C ASTM C177 Relative Temp Index, Elec (2) 170 °C UL 746B	CTE, -20°C to 150°C, flow		•	ASTM E831
Relative Temp Index, Elec ⁽²⁾ 170 °C UL 746B			•	
			•	ASTM C177
Relative Temp Index, Mech w/impact (2) 170 °C UL 746B		170		UL 746B
	Relative Temp Index, Mech w/impact (2)	170	°C	UL 746B



PROPERTIES	TVDICAL VALUES	LIMITE	TEST METHODS
PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Relative Temp Index, Mech w/o impact (2)	170	°C	UL 746B
PHYSICAL (1)			
Density	1.27	g/cm³	ISO 1183
Moisture Absorption, (23°C/50% RH/24hrs)	0.2	%	ISO 62-4
Moisture Absorption, (23°C/50% RH/Equilibrium)	0.7	%	ISO 62-4
Water Absorption, (23°C/24hrs)	0.25	%	ISO 62-1
Water Absorption, (23°C/saturated)	1.25	%	ISO 62-1
Melt Volume Rate, MVR at 360°C/5.0 kg	13	cm ³ /10 min	ISO 1133
Specific Gravity	1.27	-	ASTM D792
Water Absorption, (23°C/24hrs)	0.25	%	ASTM D570
Water Absorption, (23°C/Saturated)	1.25	%	ASTM D570
Melt Flow Rate, 337°C/6.6 kgf	9	g/10 min	ASTM D1238
Poisson's Ratio	0.36	-	ASTM E132
Mold Shrinkage, flow, 3.2 mm	0.5 – 0.7	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm ⁽³⁾	0.5 – 0.7	%	SABIC method
ELECTRICAL (1)			
Volume Resistivity	1.E+15	Ω.cm	IEC 60093
Surface Resistivity, ROA	>1.E+15	Ω	IEC 60093
Dielectric Strength, in oil, 0.8 mm	33	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 1.6 mm	25	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 3.2 mm	16	kV/mm	IEC 60243-1
Relative Permittivity, 1 MHz	2.9	-	IEC 60250
Dissipation Factor, 1 MHz	0.006	-	IEC 60250
Relative Permittivity, 50/60 Hz	2.9	-	IEC 60250
Dissipation Factor, 50/60 Hz	0.0005	-	IEC 60250
Dielectric Constant (4)			
at 1.1 GHz	3.01	-	-
at 5 GHz	3.02	-	-
at 10 GHz	3.02	-	-
Dissipation Factor ⁽⁴⁾	0.0012		
at 1.1 GHz	0.0012	-	-
at 5 GHz	0.0024	-	-
at 10 GHz	0.0027	-	- IFC 60112
Comparative Tracking Index (5)	150	V	IEC 60112
Comparative Tracking Index, M (5)	100	V	IEC 60112
Volume Resistivity	1.E+17	Ω.cm	ASTM D257
Dielectric Strength, in air, 1.6 mm	32.7	kV/mm	ASTM D149
Dielectric Strength, in oil, 1.6 mm	28.0	kV/mm	ASTM D149
Dielectric Strength, in oil, 3.2 mm	19.7	kV/mm	ASTM D149
Relative Permittivity, 100 Hz	3.15	-	ASTM D150
Dissipation Factor, 100 Hz	0.0015	-	ASTM D150
Relative Permittivity, 1 kHz	3.15 0.0012	-	ASTM D150
Dissipation Factor, 1 kHz		PLC Code	ASTM D150
Comparative Tracking Index (UL) {PLC} (2)	4	PLC Code	UL 746A
Hot-Wire Ignition (HWI), PLC 1 (2)	≥3	mm	UL 746A



PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Hot-Wire Ignition (HWI), PLC 2 $^{(2)}$	≥0.75	mm	UL 746A
High Amp Arc Ignition (HAI), PLC 3 ⁽²⁾	≥3	mm	UL 746A
High Amp Arc Ignition (HAI), PLC 4 $^{(2)}$	≥0.75	mm	UL 746A
High Voltage Arc Track Rate {PLC} (2)	2	PLC Code	UL 746A
Arc Resistance, Tungsten {PLC} (2)	5	PLC Code	ASTM D495
FLAME CHARACTERISTICS (2)			
UL Yellow Card Link	E121562-101048254	-	-
UL Recognized, 94-5VA Flame Class Rating	≥3	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	≥0.75	mm	UL 94
UL Recognized, 94V-2 Flame Class Rating	≥0.4	mm	UL 94
UV-light, water exposure/immersion	F2	-	UL 746C
Oxygen Index (LOI)	47	%	ASTM D2863
Oxygen Index (LOI)	47	%	ISO 4589
Glow Wire Flammability Index 960°C, passes at ⁽⁵⁾	3.2	mm	IEC 60695-2-12
NBS Smoke Density, Flaming, Ds 4 min	0.7	-	ASTM E662
INJECTION MOLDING (6)			
Drying Temperature	150	°C	
Drying Time	4 – 6	Hrs	
Drying Time (Cumulative)	24	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	350 – 410	°C	
Nozzle Temperature	345 – 405 345 – 415	°C °C	
Front - Zone 3 Temperature Middle - Zone 2 Temperature	340 – 405	°C	
Rear - Zone 1 Temperature	330 – 400	°C	
Mold Temperature	135 – 180	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw speed (Circumferential speed)	0.2 – 0.3	m/s	
Shot to Cylinder Size	40 - 60	%	
Vent Depth	0.025 - 0.076	mm	
EXTRUSION BLOW MOLDING			
Drying Temperature	140 – 150	°C	
Drying Time	4 – 6	Hrs	
Drying Time (Cumulative)	24	Hrs	
Maximum Moisture Content	0.01 – 0.02	%	
Melt Temperature (Parison)	320 – 355	°C	
Barrel - Zone 1 Temperature	325 – 350	°C	
Barrel - Zone 2 Temperature	330 – 355	°C	
Barrel - Zone 3 Temperature	330 – 355	°C	
Barrel - Zone 4 Temperature	330 – 355	°C	
Adapter - Zone 5 Temperature	330 - 355	°C	
Head - Zone 6 - Top Temperature	330 – 355	°C	
Head - Zone 7 - Bottom Temperature	330 – 355	°C	
Screw Speed Mold Temperature	10 – 70	°C	
Mold Temperature	65 – 175	C	



PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Die Temperature	325 – 355	°C	

- (1) The information stated on Technical Datasheets should be used as indicative only for material selection purposes and not be utilized as specification or used for part or tool design.
- (2) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses and colors. For details, please see the UL Yellow Card.
- (3) Measurements made from laboratory test coupon. Actual shrinkage may vary outside of range due to differences in processing conditions, equipment, part geometry and tool design. It is recommended that mold shrinkage studies be performed with surrogate or legacy tooling prior to cutting tools for new molded article.
- (4) Based on SPDR testing technique on dry as molded specimens.
- (5) Value shown here is based on internal measurement.
- (6) Injection Molding parameters are only mentioned as general guidelines. These may not apply or may need adjustment in specific situations such as low shot sizes, large part molding, thin wall molding and gas-assist molding.

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