

ULTEM™ RESIN 2310R

DESCRIPTION

ULTEM 2310R resin is an improved flow 30% glass fiber reinforced polyetherimide resin with an added internal mold release. The material is RoHS compliant and is intrinsically flame retardant without the use of FR modifiers and offers UL94 VO and 5VA ratings. The material may offer excellent dimension stability, strength, stiffness and creep resistance up to high temperature due to its high glass transition temperature of 217°C. The material is opaque and can be custom colored.

ISCC+ certified renewable bio-based solutions are available for this grade via differentiated color nomenclature."

GENERAL INFORMATION	
Features	Flame Retardant, Chemical Resistance, Good Processability, High Flow, Hydrolytic Stability, Low Warpage, Low Smoke and Toxicity, Thin Wall, Dielectrics, Amorphous, Low Shrinkage, Sustainable (bio-based offerings), Non halogenated flame retardant, Electroplatable, Enhanced mold release, Creep resistant, Dimensional stability, High stiffness/Strength, High temperature resistance, No PFAS intentionally added
Fillers	Glass Fiber
THICIS	Glass Fibel
Polymer Types	Polyetherimide (PEI)

INDUSTRY	SUB INDUSTRY
Automotive	Heavy Truck, Automotive Under the Hood, Aerospace, Motorcycle, Recreational/Specialty Vehicles
Building and Construction	Building Component, Water Management
Consumer	Consumer Goods, Sport/Leisure, Personal Accessory, Home Appliances, Commercial Appliance, Furniture
Electrical and Electronics	Energy Management, Drone Solutions, Mobile Phone - Computer - Tablets, Circuit Boards/Additives, Lighting, Printer Copier, Speaker - Earphone, Wireless Communication
Hygiene and Healthcare	Personal and Professional Hygiene, Pharmaceutical Packaging and Drug Delivery, Surgical devices, General Healthcare, Patient Testing
Industrial	Electrical, Material Handling, Textile, Eyewear
Mass Transportation	Rail
Packaging	Industrial Packaging

TYPICAL PROPERTY VALUES

Revision 20230725

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL (1)			
Tensile Stress, break, 5 mm/min	175	MPa	ISO 527
Tensile Strain, break, 5 mm/min	2.4	%	ISO 527
Tensile Modulus, 1 mm/min	10500	MPa	ISO 527
Flexural Stress, break, 2 mm/min	240	MPa	ISO 178
Flexural Modulus, 2 mm/min	9600	MPa	ISO 178
Ball Indentation Hardness, H358/30	165	MPa	ISO 2039-1
Taber Abrasion, CS-17, 1 kg	20	mg/1000cy	SABIC method
Hardness, Rockwell M	110	-	ISO 2039-2
Tensile Stress, brk, Type I, 5 mm/min	175	MPa	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	2.5	%	ASTM D638



Testals Modulus, 5 mm/min 10400 MPa	PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Fleezural Strees, brk, 2.6 mm/min, 100 mm span 230 Mira ASTM D790 Fleezural Modulus, 2.6 mm/min, 100 mm span 9400 Mira ASTM D790 Fleezural Modulus, 1.3 mm/min, 50 mm span 9700 Mira ASTM D780 Fleezural Modulus, 1.3 mm/min, 50 mm span 9700 Mira ASTM D785 Handrack, Rockwell M 10 Mira IS D180/1A MEACT, 17 VIV WIRACT IS D180/1A Lood Impact, notched 80°10'4-23°C 10 Mira IS D180/1A Lood Impact, unotched 80°10'4-23°C 40 Mira IS D180/1U Lood Impact, unotched 80°10'4-30°C 40 Mira IS D180/1U Charry 23°C, Verotch Edgew 80°10'4-5p=62mm 10 Mira IS D179/1eA Charry 23°C, Verotch Edgew 80°10'4-5p=62mm 40 Mira IS D179/1eA Charry 23°C, Unotch Edgew 80°10'4-5p=62mm 40 Mira ASTM D256 Lood Impact, unotched, 23°C 90 Ima ASTM D256 Lood Impact, expense Notched, 32°m 40 Mira ASTM D256 Lood Impact, unotched, 30°C				
Pecural Modulus, 2.6 mm/min, 100 mm span 9400 Mira ASTM D790 Pecural Modulus, 1.3 mm/min, 50 mm span 9700 Mira ASTM D790 Pecural Modulus, 1.3 mm/min, 50 mm span 9700 Mira ASTM D790 Pecural Modulus, 1.3 mm/min, 50 mm span 9700 Mira ASTM D785 Pecural Modulus, 1.3 mm/min, 50 mm span 9700 Mira 140 ASTM D785 Pecural Modulus, 1.3 mm/min, 50 mm span 9700 William 150 Mira Mira Pecural Modulus, 1.3 mm/min, 50 mm span 9700 William 150 Mira 150 Mira Pecural Modulus, 1.3 mm/min, 50 mm span 9700 William 150 Mira 150 Mira Pecural Modulus, 1.4 mm 150 Mira Mira 150 Mira 150 Mira Pecural Modulus, 1.4 mm 150 Mira Mira 150 Mira 150 Mira Pecural Modulus, 1.4 mm 150 Mira Mira 150 Mira 150 Mira Pecural Modulus, 1.4 mm 150 Mira Mira Mira Mira Mira Pecural Modulus, 1.4 mm 150 Mira Mira Mira Mira Mira Pecural Modulus, 1.4 mm 150 Mira Mira Mira Mira Mira Pecural Modulus, 1.4 mm 150 Mira Mira Mira Mira Pecural Modulus, 1.4 mm 150 Mira Mira Mira Mira Pecural Modulus, 1.4 mm 150 Mira Mira Mira Mira Pecural Modulus, 1.4 mm 150 Mira Mira Mira Mira Pecural Modulus, 1.4 mm 150 Mira Mira Mira Mira Pecural Modulus, 1.4 mm 150 Mira Mira Mira Pecural Modulus, 1.4 mm 150 Mira Mira Mira Mira Pecural Modulus, 1.4 mm 150 Mira Mira Mira Pecural Modulus, 1.4 mm 150 Mira Mira Mira Mira Pecural Modulus, 1.4 mm 150 Mira Mira Mira Mira Pecural Modulus, 1.4 mm 150 Mira Mira Mira Mira Pecural Modulus, 1.4 mm 150 Mira Mira Mira Mira Mira Pecural Modulus, 1.4 mm 150 Mira Mira Mira Mira Mira Mira Pecural Modulus, 1.4 mm 150 Mira	·			
Fleeural Strees, brk. 1.3 mm/min. 50 mm span 250 MPa ASTM 0790 Fleeural Modulos, 1.3 mm/min. 50 mm span 9700 MPa ASTM 0780 Hardness, Rockwell 114 - ASTM 0785 MINACT*** 1 MINACT*** STM 0785 MINACT**** 10 MJm² BO 180/1A Lood Impact, notched 80*10*4*23*** 40 MJm² BO 180/1A Lood Impact, unnotched 80*10*4*23** 40 MJm² BO 180/1A Lood Impact, Unnotched 80*10*4*39** 40 MJm² BO 180/1A Charpy 22*** Charpy 23*** MJm² BO 197/16** Charpy 23*** Unnotch Edgew 80*10*4*3p=62mm 10 MJm² BO 179/16** Charpy 23** Unnotch Edgew 80*10*4*3p=62mm 40 MJm² BO 179/16** Lood Impact, Notched, 23** BO JJm² ASTM 0256 Lood Impact, Notched, 23** BO JJm ASTM 0256 Lood Impact, Lootched, 23** BO JJm ASTM 0256 Lood Impact, Lootched, 23** BO JJm ASTM	·			
Protect Modulus 1.3 mm/min 5.0 mm span 9700 14 mm 9700 271	, ,			
Hardness, Rockwell M IMPACT				
MNPACT ¹⁹ Impact, notched 80°10°4.30°C 10 M/Pact ISO 180/1A Lood Impact, notched 80°10°4.30°C 40 M/Pac 85 0180/1A Lood Impact, unnotched 80°10°4.30°C 40 M/Pac 85 180/1U Lood Impact, unnotched 80°10°4.92°C 40 M/Pac 85 180/1U Charpy 30°C, Vnotch Edgew 80°10°4.92°E2mm 10 M/Pac 85 179/1eA Charpy 30°C, Unnotch Edgew 80°10°4.92°E2mm 40 M/Pac 85 179/1eA Charpy 30°C, Unnotch Edgew 80°10°4.92°E2mm 40 M/Pac 85 179/1eA Charpy 30°C, Unnotch Edgew 80°10°4.92°E2mm 40 M/Pac 85 179/1eA Charpy 30°C, Unnotch Edgew 80°10°4.92°E2mm 40 M/Pac 85 179/1eA Lobar Jance, Unnotched, 30°C 80 J/Pac A5TM 0256 Lood Impact, contoble, 32°C 80 J/Pac A5TM 0256 Lood Impact, contoble, 30°C 80 J/Pac A5TM 0256 Lood Impact, contoble, 23°C 80 J/Pac 85 180/10 Lood Impact, contoble, 23°C 80 M/Pac 85 180/10 Lood Impact	, .		-	
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Charpy 23°C, V-notch Edgew 80°10′4 sp=62mm 10 I/Jm² ISO 1791 leA Charpy 30°C, V-notch Edgew 80°10′4 sp=62mm 40 I/Jm² ISO 1791 leQ Charpy 30°C, Unnotch Edgew 80°10′4 sp=62mm 40 I/Jm² ISO 1791 leQ Lordary 30°C, Unnotch Edgew 80°10′4 sp=62mm 40 I/Jm² SO 1791 leQ Izod Impact, notched, 23°C 90 J/m ASTM D256 Izod Impact, notched, 30°C 80 J/m ASTM D256 Izod Impact, unnotched, 30°C 600 J/m ASTM D4812 Izod Impact, unnotched, 30°C 600 J/m ASTM D4812 Izod Impact, unnotched, 30°C 600 J/m ASTM D4812 Izod Impact, unnotched, 30°C 80 J/m ASTM D4812 Izod Impact, unnotched, 30°C 80 90 J/m ASTM D4812 Izod Impact, unnotched, 30°C 80 90 J/m ASTM D4812 Izod Impact, unnotched, 30°C 80 80 80 80 Izod Impact, unnotched, 30°C 80 80 80 80 80	•		,	
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Charpy 23°C, Unnotch Edgew 80°10°4 sp=62mm 40 kJm² ISO 179/1eU Charpy - 30°C, Unnotch Edgew 80°10°4 sp=62mm 40 kJm² ISO 179/1eU Lood Impact, notched, 23°C 80 IJm ASTM D256 Lood Impact, Reverse Notched, 32°C 600 IJm ASTM D256 Lood Impact, unnotched, 23°C 600 IJm ASTM D4812 Lood Mpact, unnotched, 23°C 800 800 800 Lood Mpact, unnotched, 23°C 800 800 800 Lood Mpact, unnotched, 23°C 800 800 800				,
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Izod Impact, notched. 30°C 80 J/m ASTM D256 Izod Impact, Reverse Notched, 32°C 470 J/m ASTM D256 Izod Impact, unnotched, 23°C 600 J/m ASTM D4812 Izod Impact, unnotched, 30°C 600 J/m ASTM D4812 Izod Impact, unnotched, 30°C 600 J/m ASTM D4812 Izod Impact, unnotched, 30°C 800 150 75/81 HDT/BI, 0.45 MPa Flatw 80°10°4 sp-64mm 215 °C 150 75/81 HDT/AI, 1.8 MPa Flatw 80°10°4 sp-64mm 210 °C 150 75/81 Vicat Softening Temp, Rate 8/150 225 °C 150 306 Vicat Softening Temp, Rate B/150 213 °C 150 306 CTE, 40°C to 150°C, flow 1.860 1/°C 150 1359-2 CTE, 40°C to 150°C, flow 2.810 2.800 10 150 1359-2 DT, 4.5 MPa, 3.2 mm, unannealed 215 °C ASTM D648 HDT, 0.45 MPa, 3.2 mm, unannealed 212 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 210 °C ASTM D648			,	,
Izod Impact, Reverse Notched, 3.2 mm 470 I/m ASTM D256 Izod Impact, unnotched, 23°C 600 I/m ASTM D4812 Izod Impact, unnotched, 30°C 600 I/m ASTM D4812 Izod Impact, unnotched, 30°C 600 I/m ASTM D4812 ITEMEMAL**********************************	•		,	
Izod Impact, unnotched, 23°C 600 J/m ASTM D4812 Izod Impact, unnotched, -30°C 600 J/m ASTM D4812 THERMAL (1) HDT/Bf, 0.45 MPa Flatw 80°10°4 sp=64mm 215 °C ISO 75/Bf MDT/Bf, 1.8 MPa Flatw 80°10°4 sp=64mm 210 °C ISO 306 Vicat Softening Temp, Rate B/120 225 °C ISO 306 Vicat Softening Temp, Rate B/120 213 °C ISO 306 CTE, 40°C to 150°C, flow 1.8E-05 1/°C ISO 11359-2 CTE, 40°C to 150°C, flow 5.0 1.9°C ISO 11359-2 Thermal Conductivity 3.31 Win*C ISO 11359-2 HDT, 0.45 MPa, 3.2 mm, unannealed 215 °C ASTM D648 HDT, 0.45 MPa, 6.4 mm, unannealed 212 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 21 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 1.8E-05 1/°C ASTM D648 CTE, 20°C to 150°C, flow 1.8E-0	•	470	,	ASTM D256
Izada Impact, unnotched30°C 600 J/m ASTM D4812 THERMAL I** HDT/Bf, 0.45 MPa Flatw 80°10°4 sp=64mm 215 °C ISO 75/Bf HDT/Bf, 1.8 MPa Flatw 80°10°4 sp=64mm 210 °C ISO 306 Vicat Softening Temp, Rate A/50 225 °C ISO 306 Vicat Softening Temp, Rate B/120 220 °C ISO 306 Vicat Softening Temp, Rate B/50 213 °C ISO 306 CTE, 40°C to 150°C, flow 1.8605 1/°C ISO 11359-2 CTE, 40°C to 150°C, flow 4.8605 1/°C ISO 11359-2 CTE, 40°C to 150°C, flow 4.8605 1/°C ISO 302 CTE, 40°C to 150°C, flow 4.8605 1/°C ASTM D648 CTE, 40°C to 150°C, flow 212 6°C ASTM D648 HDT, 0.45 MPa, 3.2 mm, unannealed 211 °C ASTM D648 LDT, 1.82 MPa, 3.2 mm, unannealed 21 °C ASTM D648 CTE, 20°C to 150°C, flow	•		,	ASTM D4812
THERMAL (**) HDT/Bf. 0.45 MPa Flatw 80*10*4 sp=64mm 215 °C ISO 75/Bf HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm 210 °C ISO 306 Vicat Softening Temp, Rate A/50 225 °C ISO 306 Vicat Softening Temp, Rate B/120 220 °C ISO 306 CTE, 40°Cto 150°C, flow 1.8E-05 1/°C ISO 11359-2 CTE, 40°Cto 150°C, flow 4.8E-05 1/°C ISO 11359-2 Thermal Conductivity 0.31 W/m.°C ISO 8302 Ball Pressure Test, 125°C */- 2°C PASS *C ASTM D648 HDT, 0.45 MPa, 3.2 mm, unannealed 212 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 21 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 21 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 18E-05 1/°C ASTM D648 CTE, 20°C to 150°C, flow 18E-05 1/°C ASTM E831 CTE, 20°C to 150°C, flow 18E-05 1/°C ASTM E831 CTE, 20°C to 150°C, flow 18E-0	•	600	,	ASTM D4812
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm 215 °C ISO 75/Bf HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm 210 °C ISO 305 Vicat Softening Temp, Rate A/50 225 °C ISO 306 Vicat Softening Temp, Rate B/120 220 °C ISO 306 Vicat Softening Temp, Rate B/50 213 °C ISO 306 CTE, 40°C to 150°C, folow 1.8E-05 1/°C ISO 11359-2 Thermal Conductivity 4.8E-05 1/°C ISO 303 Ball Pressure Test, 125°C +/-2°C PASS - IEC 60695-10-2 HDT, 0.45 MPa, 3.2 mm, unannealed 212 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 21 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 21 °C ASTM D648 CTE, 20°C to 150°C, flow 1.8E-05 1/°C ASTM D648 CTE, 20°C to 150°C, flow 1.8E-05 1/°C ASTM E831 CTE, 20°C to 150°C, flow 1.8E-05 1/°C ASTM E831 CTE, 20°C to 150°C, flow 1.8E-05 1/°C ASTM E831 <td>-</td> <td></td> <td></td> <td></td>	-			
HDT/Af. 1.8 MPa Flatw 80*10*4 sp=64mm 210 °C ISO 75/Af Vicat Softening Temp. Rate A/50 225 °C ISO 306 Vicat Softening Temp. Rate B/120 220 °C ISO 306 Vicat Softening Temp. Rate B/50 213 °C ISO 306 CTC. 40°C to 150°C, flow 150°C, flow 150°C ISO 306 CTC. 40°C to 150°C, flow 150°C, flow 150°C ISO 306 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 306 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 306 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 306 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 306 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 306 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 300 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 300 Ball Pressure Test, 125°C +/-2°C 150°C , flow 150°C ISO 300 Ball Pressure Test, 125°C +/-2°C 150°C , flow 150°C ISO 300 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 300 CTC. 40°C to 150°C, flow 150°C ISO 300 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 300 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 300 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 300 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 300 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 300 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 300 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 300 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 300 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 300 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 300 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 300 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 300 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 300 CTC. 40°C to 150°C, flow 150°C , flow 150°C ISO 300 CTC. 40°C to 150°C, flow 150°C , flow 15		215	°C	ISO 75/Bf
Vicat Softening Temp, Rate A/50 225 °C ISO 306 Vicat Softening Temp, Rate B/120 220 °C ISO 306 Vicat Softening Temp, Rate B/50 213 °C ISO 306 CTE, -40°C to 150°C, flow 1.8E-05 1/°C ISO 11359-2 CTE, -40°C to 150°C, flow 4.8E-05 1/°C ISO 11359-2 Thermal Conductivity 0.31 W/m°C ISO 8302 Ball Pressure Test, 125°C +/- 2°C PASS - IEC 60695-10-2 HDT, 0.45 MPa, 3.2 mm, unannealed 215 °C ASTM D648 HDT, 1.82 MPa, 3.4 mm, unannealed 210 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 210 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 18E-05 1/°C ASTM D648 CTE, -20°C to 150°C, flow 1.8E-05 1/°C ASTM E831 CTE, -20°C to 150°C, flow 4.8E-05 1/°C ASTM E831 Relative Temp Index, Mech w/o impact (²) 180 °C UL 7468 Relative Temp Index, Mech w/o impact (²) 17 20 UL				,
Vicat Softening Temp, Rate B / 120 220 °C ISO 306 Vicat Softening Temp, Rate B / 50 213 °C ISO 306 CTE, -40°C to 150°C, flow 1.86-05 1/°C ISO 11359-2 CTE, -40°C to 150°C, xflow 4.86-05 1/°C ISO 11359-2 Thermal Conductivity 0.31 W/m°C ISO 8302 Ball Pressure Test, 125°C +/-2°C PASS - IEC 60695-10-2 HDT, 0.45 MPa, 3.2 mm, unannealed 215 °C ASTM D648 HDT, 1.82 MPa, 3.4 mm, unannealed 212 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 210 °C ASTM D648 CTE, -20°C to 150°C, filow 1.86-05 1/°C ASTM D648 CTE, -20°C to 150°C, filow 4.86-05 1/°C ASTM E831 Relative Temp Index, Elec ⁽²⁾ 180 °C UL7 468 Relative Temp Index, Mech w/o impact ⁽²⁾ 180 °C UL7 46B Relative Temp Index, Mech w/o impact ⁽²⁾ 180 °C UL7 46B PHYSICAL ⁽¹⁾ Density				,
Vicat Softening Temp, Rate BJ50 213 °C ISO 306 CTE, -40°C to 150°C, filow 1.8E-05 1/°C ISO 11359-2 CTE, -40°C to 150°C, xiflow 4.8E-05 1/°C ISO 11359-2 Thermal Conductivity 0.31 W/m°C ISO 8032 Ball Pressure Test, 125°C +/- 2°C PASS - IEC 60695-10-2 HDT, 0.45 MPa, 3.2 mm, unannealed 215 °C ASTM D648 HDT, 0.45 MPa, 6.4 mm, unannealed 212 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 210 °C ASTM D648 CTE, -20°C to 150°C, filow 1.8E-05 1/°C ASTM D648 CTE, -20°C to 150°C, xilow 4.8E-05 1/°C ASTM E831 Relative Temp Index, Mech w/impact (2) 180 °C U.7468 Relative Temp Index, Mech w/o impact (2) 170 °C U.746B PHYSICAL (1) U.746B U.746B PHYSICAL (1) 2 U.746B PHYSICAL (1) 2 U.746B Doisture Absorption, (23°C/50% RH/24hrs) 0.1 6	- ' '			
CTE, 40°C to 150°C, flow 1.8E.05 1,°C ISO 11359-2 CTE, 40°C to 150°C, xflow 4.8E.05 1,°C ISO 11359-2 Thermal Conductivity 0.31 W/m°C ISO 8302 Ball Pressure Test, 125°C +/- 2°C PASS - IEC 60695-10-2 HDT, 0.45 MPa, 3.2 mm, unannealed 215 °C ASTM D648 HDT, 0.45 MPa, 6.4 mm, unannealed 212 °C ASTM D648 HDT, 1.82 MPa, 3.2mm, unannealed 211 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 210 °C ASTM D648 CTE, 20°C to 150°C, flow 1.8E.05 1,°C ASTM E831 CTE, 20°C to 150°C, xflow 4.8E.05 1,°C ASTM E831 Relative Temp Index, Mech w/impact (2) 180 °C U.746B Relative Temp Index, Mech w/o impact (2) 180 °C U.746B PHYSICAL (1) V U.746B PHYSICAL (1) V U.746B Desity 1.51 (30 (30 (30 (30 (24 Moisture Absorption				
Thermal Conductivity 0.31 W/m°C ISO 8302 Ball Pressure Test, 125°C + J-2°C PASS - IEC 60695-10-2 HDT, 0.45 MPa, 3.2 mm, unannealed 215 °C ASTM D648 HDT, 0.45 MPa, 6.4 mm, unannealed 212 °C ASTM D648 HDT, 1.82 MPa, 3.2mm, unannealed 211 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 210 °C ASTM D648 CTE, -20°C to 150°C, flow 1.8E.05 1/°C ASTM E831 CTE, -20°C to 150°C, xflow 4.8E.05 1/°C ASTM E831 Relative Temp Index, Elec (2) 180 °C UL 746B Relative Temp Index, Mech w/impact (2) 170 °C UL 746B Relative Temp Index, Mech w/o impact (2) 180 °C UL 746B PHYSICAL (1) ** ** ** ** Density 1.51 \$ \$ ** ** ** Moisture Absorption, (23°C/50% RH/Equilibrium) 0.6 % ** ** ** ** ** **	- ' '	1.8E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C + J- 2°C PASS - IEC 60695-10-2 HDT, 0.45 MPa, 3.2 mm, unannealed 215 °C ASTM D648 HDT, 0.45 MPa, 6.4 mm, unannealed 212 °C ASTM D648 HDT, 1.82 MPa, 3.2mm, unannealed 211 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 210 °C ASTM D648 CTE, 20°C to 150°C, flow 1.86-05 1/°C ASTM E831 CTE, 20°C to 150°C, xflow 4.86-05 1/°C ASTM E831 Relative Temp Index, Elec ⁽²⁾ 180 °C UL 746B Relative Temp Index, Mech w/o impact ⁽²⁾ 180 °C UL 746B Relative Temp Index, Mech w/o impact ⁽²⁾ 180 °C UL 746B PHYSICAL ⁽¹⁾ 20 C UL 746B Physical ⁽¹⁾ 5 S C S S Boisture Absorption, (23°C/50% RH/24hrs) 1.51 S S S 150 62-4 Moisture Absorption, (23°C/50% RH/24hrs) 0.6 % S 150 62-4 Water Absorption, (23°C/24hr	CTE, -40°C to 150°C, xflow	4.8E-05	1/°C	ISO 11359-2
HDT, 0.45 MPa, 3.2 mm, unannealed 215 °C ASTM D648 HDT, 0.45 MPa, 6.4 mm, unannealed 212 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 211 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 210 °C ASTM D648 CTE, 20°C to 150°C, flow 1.8E-05 1/°C ASTM E831 CTE, 20°C to 150°C, xflow 4.8E-05 1/°C ASTM E831 Relative Temp Index, Elec ⁽²⁾ 180 °C U.746B Relative Temp Index, Mech w/impact ⁽²⁾ 170 °C U.746B Relative Temp Index, Mech w/o impact ⁽²⁾ 180 °C U.746B PHYSICAL ⁽¹⁾ 2 U.746B C PHYSICAL ⁽¹⁾ U.746B C U.746B Boisture Absorption, (23°C/50% RH/24hrs) 1.51 g/cm³ ISO 1183 Moisture Absorption, (23°C/50% RH/Equilibrium) 0.6 % ISO 62-4 Water Absorption, (23°C/24hrs) 0.16 % ISO 62-1	Thermal Conductivity	0.31	W/m-°C	ISO 8302
HDT, 0.45 MPa, 6.4 mm, unannealed 212 °C ASTM D648 HDT, 1.82 MPa, 3.2 mm, unannealed 211 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 210 °C ASTM D648 CTE, -20°C to 150°C, flow 1.86-05 1/°C ASTM E831 CTE, -20°C to 150°C, xflow 4.86-05 1/°C ASTM E831 Relative Temp Index, Elec (2) 180 °C UL 746B Relative Temp Index, Mech w/impact (2) 180 °C UL 746B Relative Temp Index, Mech w/o impact (2) 180 °C UL 746B PHYSICAL (1) 2 UL 746B C PHYSICAL (1) 9/c 150 62-4 Moisture Absorption, (23°C/50% RH/24hrs) 0.1 % 150 62-4 Moisture Absorption, (23°C/50% RH/Equilibrium) 0.6 % 150 62-4 Water Absorption, (23°C/24hrs) 0.16 % 150 62-4	Ball Pressure Test, 125°C +/- 2°C	PASS	-	IEC 60695-10-2
HDT, 1.82 MPa, 3.2mm, unannealed 211 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 210 °C ASTM D648 CTE, -20°C to 150°C, flow 1.86-05 1/°C ASTM E831 CTE, -20°C to 150°C, xflow 4.86-05 1/°C ASTM E831 Relative Temp Index, Elec (2) 180 °C UL 746B Relative Temp Index, Mech w/o impact (2) 180 °C UL 746B PHYSICAL (1) ** UL 746B Density 1.51 g/cm³ ISO 1183 Moisture Absorption, (23°C/50% RH/24hrs) 0.1 % ISO 62-4 Moisture Absorption, (23°C/50% RH/Equilibrium) 0.6 % ISO 62-4 Water Absorption, (23°C/24hrs) 0.16 % ISO 62-1	HDT, 0.45 MPa, 3.2 mm, unannealed	215	°C	ASTM D648
HDT, 1.82 MPa, 6.4 mm, unannealed 210 °C ASTM D648 CTE, -20°C to 150°C, flow 1.8E-05 1/°C ASTM E831 CTE, -20°C to 150°C, xflow 4.8E-05 1/°C ASTM E831 Relative Temp Index, Elec (2) 180 °C UL 746B Relative Temp Index, Mech w/o impact (2) 180 °C UL 746B Relative Temp Index, Mech w/o impact (2) 180 °C UL 746B PHYSICAL (1) 2 UL 746B C Density 1.51 g/cm³ ISO 1183 Moisture Absorption, (23°C/50% RH/24hrs) 0.1 % ISO 62-4 Moisture Absorption, (23°C/50% RH/Equilibrium) 0.6 % ISO 62-4 Water Absorption, (23°C/24hrs) 0.16 % ISO 62-1	HDT, 0.45 MPa, 6.4 mm, unannealed	212	°C	ASTM D648
CTE, -20°C to 150°C, flow 1.8E-05 1/°C ASTM E831 CTE, -20°C to 150°C, xflow 4.8E-05 1/°C ASTM E831 Relative Temp Index, Elec (²) 180 °C UL 746B Relative Temp Index, Mech w/impact (²) 170 °C UL 746B Relative Temp Index, Mech w/o impact (²) 180 °C UL 746B PHYSICAL (¹) Density 1.51 g/cm³ ISO 1183 Moisture Absorption, (23°C/50% RH/24hrs) 0.1 % ISO 62-4 Moisture Absorption, (23°C/50% RH/Equilibrium) 0.6 % ISO 62-1 Water Absorption, (23°C/24hrs) 0.16 % ISO 62-1	HDT, 1.82 MPa, 3.2mm, unannealed	211	°C	ASTM D648
CTE, -20°C to 150°C, xflow Relative Temp Index, Elec (2) Relative Temp Index, Mech w/impact (2) Relative Temp Index, Mech w/o impact (2) Relative Temp I	HDT, 1.82 MPa, 6.4 mm, unannealed	210	°C	ASTM D648
Relative Temp Index, Elec (2) 180 °C UL 746B Relative Temp Index, Mech w/impact (2) 170 °C UL 746B Relative Temp Index, Mech w/o impact (2) 180 °C UL 746B PHYSICAL (1) Density 1.51 g/cm³ ISO 1183 Moisture Absorption, (23°C/50% RH/24hrs) 0.1 % ISO 62-4 Moisture Absorption, (23°C/50% RH/Equilibrium) 0.6 % ISO 62-4 Water Absorption, (23°C/24hrs) 0.16 % ISO 62-1	CTE, -20°C to 150°C, flow	1.8E-05	1/°C	ASTM E831
Relative Temp Index, Mech w/impact (2) 170 °C UL 746B Relative Temp Index, Mech w/o impact (2) 180 °C UL 746B PHYSICAL (1) Density 1.51 g/cm³ ISO 1183 Moisture Absorption, (23°C/50% RH/24hrs) 0.1 % ISO 62-4 Moisture Absorption, (23°C/50% RH/Equilibrium) 0.6 % ISO 62-4 Water Absorption, (23°C/24hrs) 0.16 % ISO 62-1	CTE, -20°C to 150°C, xflow	4.8E-05	1/°C	ASTM E831
Relative Temp Index, Mech w/o impact ⁽²⁾ 180 °C UL 746B PHYSICAL ⁽¹⁾ Density 1.51 g/cm³ ISO 1183 Moisture Absorption, (23°C/50% RH/24hrs) 0.1 % 1SO 62-4 Moisture Absorption, (23°C/50% RH/Equilibrium) 0.6 % 1SO 62-4 Water Absorption, (23°C/24hrs) 0.16 % 1SO 62-1	Relative Temp Index, Elec ⁽²⁾	180	°C	UL 746B
PHYSICAL (1) Density 1.51 g/cm³ ISO 1183 Moisture Absorption, (23°C/50% RH/24hrs) 0.1 % ISO 62-4 Moisture Absorption, (23°C/50% RH/Equilibrium) 0.6 % ISO 62-4 Water Absorption, (23°C/24hrs) 0.16 % ISO 62-1	Relative Temp Index, Mech w/impact (2)	170	°C	UL 746B
Density I.51 g/cm³ ISO 1183 Moisture Absorption, (23°C/50% RH/24hrs) 0.1 % ISO 62-4 Moisture Absorption, (23°C/50% RH/Equilibrium) 0.6 % ISO 62-4 Water Absorption, (23°C/24hrs) 0.16 % ISO 62-1	Relative Temp Index, Mech w/o impact (2)	180	°C	UL 746B
Density I.51 g/cm³ ISO 1183 Moisture Absorption, (23°C/50% RH/24hrs) 0.1 % ISO 62-4 Moisture Absorption, (23°C/50% RH/Equilibrium) 0.6 % ISO 62-4 Water Absorption, (23°C/24hrs) 0.16 % ISO 62-1	PHYSICAL (1)			
Moisture Absorption, (23°C/50% RH/24hrs) 0.1 % ISO 62-4 Moisture Absorption, (23°C/50% RH/Equilibrium) 0.6 % ISO 62-4 Water Absorption, (23°C/24hrs) 0.16 % ISO 62-1		1.51	g/cm³	ISO 1183
Moisture Absorption, (23°C/50% RH/Equilibrium) 0.6 % ISO 62-4 Water Absorption, (23°C/24hrs) 0.16 % ISO 62-1				
	Moisture Absorption, (23°C/50% RH/Equilibrium)			ISO 62-4
Water Absorption, (23°C/saturated) 0.9 % ISO 62-1	Water Absorption, (23°C/24hrs)	0.16	%	ISO 62-1
	Water Absorption, (23°C/saturated)	0.9	%	ISO 62-1



PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Melt Volume Rate, MVR at 360°C/5.0 kg	8	cm³/10 min	ISO 1133
Specific Gravity	1.51	-	ASTM D792
Water Absorption, (23°C/24hrs)	0.16	%	ASTM D570
Water Absorption, (23°C/Saturated)	0.9	%	ASTM D570
Melt Flow Rate, 337°C/6.6 kgf	7.6	g/10 min	ASTM D1238
Mold Shrinkage, flow, 3.2 mm ⁽³⁾	0.2 - 0.4	%	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	35	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 1.6 mm	26	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 3.2 mm	15	kV/mm	IEC 60243-1
Relative Permittivity, 50/60 Hz	3.3		IEC 60250
Relative Permittivity, 1 MHz	3.4	-	IEC 60250
Dissipation Factor, 50/60 Hz	0.0016	-	IEC 60250
Dissipation Factor, 1 MHz	0.0023	-	IEC 60250
Dielectric Constant (4)			
at 1.1 GHz	3.51	-	-
at 5 GHz	3.59	-	-
at 10 GHz	3.60	-	-
Dissipation Factor ⁽⁴⁾			
at 1.1 GHz	0.0029	-	-
at 5 GHz	0.0036	-	-
at 10 GHz	0.0046	-	-
Comparative Tracking Index (5)	150	V	IEC 60112
Comparative Tracking Index, M ⁽⁵⁾	100	V	IEC 60112
Volume Resistivity	3.E+16	Ω.cm	ASTM D257
Dielectric Strength, in air, 1.6 mm	24.8	kV/mm	ASTM D149
Dielectric Strength, in oil, 1.6 mm	30.3	kV/mm	ASTM D149
Relative Permittivity, 1 kHz	3.7	-	ASTM D150
Dissipation Factor, 1 kHz	0.0015	-	ASTM D150
Comparative Tracking Index (UL) {PLC} (2)	4	PLC Code	UL 746A
Hot-Wire Ignition (HWI), PLC 1 (2)	≥3	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 3 (2)	≥1.5	mm	UL 746A
High Amp Arc Ignition (HAI), PLC 3 (2)	≥1.5	mm	UL 746A
High Amp Arc Ignition (HAI), PLC 4 (2)	≥3	mm	UL 746A
High Voltage Arc Track Rate {PLC} (2)	3	PLC Code	UL 746A
Arc Resistance, Tungsten {PLC} (2)	6	PLC Code	ASTM D495
FLAME CHARACTERISTICS (2)			
UL Yellow Card Link	E121562-221099		
UL Yellow Card Link 2	E121562-470961	-	
UL Recognized, 94-5VA Flame Class Rating	≥1.2	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating UL Recognized, 94V-0 Flame Class Rating	≥0.25	mm	UL 94
Glow Wire Ignitability Temperature, 2.0 mm	900	°C	IEC 60695-2-13
Glow Wire Flammability Index, 2.0 mm	960	°C	IEC 60695-2-13
STOW VALLE FIGHTH ADDRESS HINGER, 2.0 HINT	500		IEC 00033-2-12



PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
UV-light, water exposure/immersion	F1	-	UL 746C
Oxygen Index (LOI)	48	%	ISO 4589
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 – 410	°C	
Front - Zone 3 Temperature	345 – 420	°C	
Middle - Zone 2 Temperature	340 – 410	°C	
Rear - Zone 1 Temperature	330 – 400	°C	
Hopper Temperature	80 – 120	°C	
Mold Temperature	135 – 180	°C	
Shot to Cylinder Size	40 – 60	%	
Vent Depth	0.025 - 0.076	mm	
Screw speed (Circumferential speed)	0.15 – 0.25	m/s	
Screw Speed	40 – 70	rpm	
Back Pressure	0.3 – 1.5	MPa	

- (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.

ADDITIONAL PRODUCT NOTES

No PFAS intentionally added: The grade listed in this document does not contain PFAS intentionally added during Seller's manufacturing process and is not expected to contain unintentional PFAS impurities. Each user is responsible for evaluating the presence of unintentional PFAS impurities.

MORE INFORMATION

For curve data and CAE cards, please visit and register at https://materialfinder.sabic-specialties.com

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