

# ULTEM™ RESIN 1100

## **REGION ASIA**

## **DESCRIPTION**

Standard flow Polyetherimide (Tg 217C). ECO Conforming, UL94 VO, V2 and 5VA listing.

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 20231109

MECHANICAL           Tensile Stress, yld, Type I, 5 mm/min         110         MPa         ASTM D638           Tensile Strain, brk, Type I, 5 mm/min         70         %         ASTM D638           Tensile Modulus, 5 mm/min         3720         MPa         ASTM D638           Flexural Stress, yld, 2.6 mm/min, 100 mm span         165         MPa         ASTM D790           Flexural Modulus, 2.6 mm/min, 100 mm span         3720         MPa         ASTM D790           IMPACT         J/m         ASTM D256           Izod Impact, notched, 23°C         37         J/m         ASTM D256           Izod Impact, Reverse Notched, 3.2 mm         1548         J/m         ASTM D256           Gardner, 23°C         23         J         ASTM D256           Gardner, 23°C         23         J         ASTM D648           Relative Temp Index, Elec <sup>(1)</sup> 170         °C         MENT D648           Relative Temp Index, Mech w/impact <sup>(1)</sup> 170         °C         UL 7468           Relative Temp Index, Mech w/impact <sup>(1)</sup> 170         °C         UL 7468           Relative Temp Index, Mech w/impact <sup>(1)</sup> 136         S         SASIM D792           Mold Shrinkage, flow, 3.2 mm         0.5 – 0.7         %         SASIM	PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Tensile Strain, brk, Type I, 5 mm/min         70         %         ASTM D638           Tensile Modulus, 5 mm/min         3720         MPa         ASTM D638           Flexural Stress, yld, 2.6 mm/min, 100 mm span         165         MPa         ASTM D790           Ibexural Modulus, 2.6 mm/min, 100 mm span         3720         MPa         ASTM D790           IMPACT         Izod Impact, notched, 23°C         37         J/m         ASTM D256           Izod Impact, Reverse Notched, 3.2 mm         1548         J/m         ASTM D256           Gardner, 23°C         23         J m         ASTM D3029           THERMAL         HDT, 1.82 MPa, 6.4 mm, unannealed         198         °C         ASTM D648           Relative Temp Index, Mech w/impact (1)         170         °C         UL 7468           Relative Temp Index, Mech w/o impact (1)         170         °C         UL 7468           Relative Temp Index, Mech w/o impact (1)         170         °C         U. 746B           PHYSICAL         Sepecific Gravity         1.36         °         ASTM D792           Mold Shrinkage, flow, 3.2 mm         0.5 - 0.7         %         SABIC method           Melt Flow Rate, 337°C/6.6 kgf         8.8         PLC Code         ASTM D1238           ELECTRICAL <td>MECHANICAL</td> <td></td> <td></td> <td></td>	MECHANICAL			
Tensile Modulus, 5 mm/min         3720         MPa         ASTM D638           Flexural Stress, yld, 2.6 mm/min, 100 mm span         165         MPa         ASTM D790           Flexural Modulus, 2.6 mm/min, 100 mm span         3720         MPa         ASTM D790           IMPACT         Ixod Impact, notched, 23°C         37         J/m         ASTM D256           Izod Impact, Reverse Notched, 3.2 mm         1548         J/m         ASTM D256           Gardner, 23°C         23         J m         ASTM D0256           Gardner, 23°C         3 m         √°C         ASTM D029           THERMAL         4         °°C         ASTM D648           Relative Temp Index, Elec (¹¹)         170         °°C         UL 7468           Relative Temp Index, Mech w/impact (¹¹)         170         °°C         UL 7468           Relative Temp Index, Mech w/o impact (¹¹)         170         °°         UL 7468           PHYSICAL           Specific Gravity         3.36         °         ASTM D792           Mold Shrinkage, flow, 3.2 mm         0.5 − 0.7         %         SABIC method           Melt Flow Rate, 337°C/6.6 kgf         8.8         9/10 min         ASTM D1238           ELECTRICAL	Tensile Stress, yld, Type I, 5 mm/min	110	MPa	ASTM D638
Flexural Stress, yld, 2.6 mm/min, 100 mm span         165         MPa         ASTM D790           Flexural Modulus, 2.6 mm/min, 100 mm span         3720         MPa         ASTM D790           IMPACT         Izod Impact, notched, 23°C         37         1/m         ASTM D256           Izod Impact, Reverse Notched, 3.2 mm         1548         J/m         ASTM D256           Gardner, 23°C         23         J m         ASTM D3029           THERMAL           HDT, 1.82 MPa, 6.4 mm, unannealed         198         °C         ASTM D648           Relative Temp Index, Elec (¹¹)         170         °C         UL 746B           Relative Temp Index, Mech w/impact (¹¹)         170         °C         UL 746B           Relative Temp Index, Mech w/o impact (¹¹)         170         °C         UL 746B           PHYSICAL           Specific Gravity         1.36         -         ASTM D792           Mold Shrinkage, flow, 3.2 mm         0.5 – 0.7         %         SABIC method           Melt Flow Rate, 337°C/6.6 kgf         8.8         9/10 min         ASTM D1238           ELECTRICAL           Arc Resistance, Tungsten (PLC)         5         PLC Code         UL 746A           H	Tensile Strain, brk, Type I, 5 mm/min	70	%	ASTM D638
NPB	Tensile Modulus, 5 mm/min	3720	MPa	ASTM D638
IMPACT         Izod Impact, notched, 23°C         37         J/m         ASTM D256           Izod Impact, Reverse Notched, 3.2 mm         1548         J/m         ASTM D256           Gardner, 23°C         23         J         ASTM D3029           THERMAL         HDT, 1.82 MPa, 6.4 mm, unannealed         198         °C         ASTM D648           Relative Temp Index, Elec (1)         170         °C         UL 7468           Relative Temp Index, Mech w/impact (1)         170         °C         UL 7468           Relative Temp Index, Mech w/o impact (1)         170         °C         UL 7468           PHYSICAL           Specific Gravity         1.36         ·         ASTM D792           Mold Shrinkage, flow, 3.2 mm         0.5 - 0.7         %         SABIC method           Melt Flow Rate, 337°C/6.6 kgf         8.8         g/10 min         ASTM D1238           ELECTRICAL           Arc Resistance, Tungsten {PLC}         5         PLC Code         ASTM D495           High Voltage Arc Track Rate {PLC}         2         PLC Code         UL 746A           Comparative Tracking Index (UL) {PLC}         4         PLC Code         UL 746A	Flexural Stress, yld, 2.6 mm/min, 100 mm span	165	MPa	ASTM D790
Izad Impact, notched, 23°C         37         J/m         ASTM D256           Izad Impact, Reverse Notched, 3.2 mm         1548         J/m         ASTM D256           Gardner, 23°C         23         J         ASTM D3029           THERMAL           HDT, 1.82 MPa, 6.4 mm, unannealed         198         °C         ASTM D648           Relative Temp Index, Elec (¹¹)         170         °C         UL 746B           Relative Temp Index, Mech w/impact (¹¹)         170         °C         UL 746B           Relative Temp Index, Mech w/o impact (¹¹)         170         °C         UL 746B           PHYSICAL           Specific Gravity         1.36         -         ASTM D792           Mold Shrinkage, flow, 3.2 mm         0.5 - 0.7         %         SABIC method           Melt Flow Rate, 337°C/6.6 kgf         8.8         g/10 min         ASTM D1238           ELECTRICAL           Arc Resistance, Tungsten (PLC)         5         PLC Code         ASTM D495           High Voltage Arc Track Rate (PLC)         2         PLC Code         UL 746A           Comparative Tracking Index (UL) {PLC}         4         PLC Code         UL 746A	Flexural Modulus, 2.6 mm/min, 100 mm span	3720	MPa	ASTM D790
Izod Impact, Reverse Notched, 3.2 mm         1548         J/m         ASTM D256           Gardner, 23°C         23         J         ASTM D3029           THERMAL           HDT, 1.82 MPa, 6.4 mm, unannealed         198         °C         ASTM D648           Relative Temp Index, Elec (1)         170         °C         UL 746B           Relative Temp Index, Mech w/impact (1)         170         °C         UL 746B           PHYSICAL           Specific Gravity         1.36         -         ASTM D792           Mold Shrinkage, flow, 3.2 mm         0.5 – 0.7         %         SABIC method           Melt Flow Rate, 337°C/6.6 kgf         8.8         g/10 min         ASTM D1238           ELECTRICAL         FLC Code         ASTM D495           High Voltage Arc Track Rate {PLC}         2         PLC Code         UL 746A           Comparative Tracking Index (UL) {PLC}         4         PLC Code         UL 746A	IMPACT			
Gardner, 23°C         23         J         ASTM D3029           THERMAL           HDT, 1.82 MPa, 6.4 mm, unannealed         198         °C         ASTM D648           Relative Temp Index, Elec (¹¹)         170         °C         UL 746B           Relative Temp Index, Mech w/o impact (¹¹)         170         °C         UL 746B           PHYSICAL           Specific Gravity         1.36         -         ASTM D792           Mold Shrinkage, flow, 3.2 mm         0.5 − 0.7         %         SABIC method           Melt Flow Rate, 337°C/6.6 kgf         8.8         g/10 min         ASTM D1238           ELECTRICAL         Arc Resistance, Tungsten {PLC}         5         PLC Code         ASTM D495           High Voltage Arc Track Rate {PLC}         2         PLC Code         UL 746A           Comparative Tracking Index (UL) {PLC}         4         PLC Code         UL 746A	Izod Impact, notched, 23°C	37	J/m	ASTM D256
THERMAL           HDT, 1.82 MPa, 6.4 mm, unannealed         198         °C         ASTM D648           Relative Temp Index, Elec (1)         170         °C         UL 746B           Relative Temp Index, Mech w/o impact (1)         170         °C         UL 746B           Relative Temp Index, Mech w/o impact (1)         170         °C         UL 746B           PHYSICAL           Specific Gravity         1.36         -         ASTM D792           Mold Shrinkage, flow, 3.2 mm         0.5 - 0.7         %         SABIC method           Melt Flow Rate, 337°C/6.6 kgf         8.8         g/10 min         ASTM D1238           ELECTRICAL           Arc Resistance, Tungsten {PLC}         5         PLC Code         ASTM D495           High Voltage Arc Track Rate {PLC}         2         PLC Code         UL 746A           Comparative Tracking Index (UL) {PLC}         4         PLC Code         UL 746A	Izod Impact, Reverse Notched, 3.2 mm	1548	J/m	ASTM D256
HDT, 1.82 MPa, 6.4 mm, unannealed  Relative Temp Index, Elec (1)  Relative Temp Index, Mech w/impact (1)  Relative Temp Index, Mech w/o impact (1)  170  °C  UL 746B  Relative Temp Index, Mech w/o impact (1)  170  °C  UL 746B  PHYSICAL  PHYSICAL  Specific Gravity  1.36   ASTM D792  Mold Shrinkage, flow, 3.2 mm  0.5 – 0.7  8 SABIC method  Melt Flow Rate, 337°C/6.6 kgf  8.8  g/10 min  ASTM D1238  ELECTRICAL  Arc Resistance, Tungsten {PLC}  Arc Resistance, Tungsten {PLC}  High Voltage Arc Track Rate {PLC}  2 PLC Code  UL 746A  UL 746A	Gardner, 23°C	23	J	ASTM D3029
Relative Temp Index, Elec (1)         170         °C         UL 746B           Relative Temp Index, Mech w/impact (1)         170         °C         UL 746B           Relative Temp Index, Mech w/o impact (1)         170         °C         UL 746B           PHYSICAL           Specific Gravity         1.36         -         ASTM D792           Mold Shrinkage, flow, 3.2 mm         0.5 – 0.7         %         SABIC method           Melt Flow Rate, 337°C/6.6 kgf         8.8         g/10 min         ASTM D1238           ELECTRICAL           Arc Resistance, Tungsten {PLC}         5         PLC Code         ASTM D495           High Voltage Arc Track Rate {PLC}         2         PLC Code         UL 746A           Comparative Tracking Index (UL) {PLC}         4         PLC Code         UL 746A	THERMAL			
Relative Temp Index, Mech w/impact (1)170°CUL 746BRelative Temp Index, Mech w/o impact (1)170°CUL 746BPHYSICALSpecific Gravity1.36·ASTM D792Mold Shrinkage, flow, 3.2 mm0.5 – 0.7%SABIC methodMelt Flow Rate, 337°C/6.6 kgf8.8g/10 minASTM D1238ELECTRICALFLC CodeASTM D495High Voltage Arc Track Rate {PLC}2PLC CodeUL 746AComparative Tracking Index (UL) {PLC}4PLC CodeUL 746A	HDT, 1.82 MPa, 6.4 mm, unannealed	198	°C	ASTM D648
Relative Temp Index, Mech w/o impact (1)         170         °C         UL 746B           PHYSICAL           Specific Gravity         1.36         -         ASTM D792           Mold Shrinkage, flow, 3.2 mm         0.5 – 0.7         %         SABIC method           Melt Flow Rate, 337°C/6.6 kgf         8.8         g/10 min         ASTM D1238           ELECTRICAL         Arc Resistance, Tungsten {PLC}         PLC Code         ASTM D495           High Voltage Arc Track Rate {PLC}         2         PLC Code         UL 746A           Comparative Tracking Index (UL) {PLC}         4         PLC Code         UL 746A	Relative Temp Index, Elec <sup>(1)</sup>	170	°C	UL 746B
PHYSICAL           Specific Gravity         1.36         -         ASTM D792           Mold Shrinkage, flow, 3.2 mm         0.5 – 0.7         %         SABIC method           Melt Flow Rate, 337°C/6.6 kgf         8.8         g/10 min         ASTM D1238           ELECTRICAL         Arc Resistance, Tungsten {PLC}         5         PLC Code         ASTM D495           High Voltage Arc Track Rate {PLC}         2         PLC Code         UL 746A           Comparative Tracking Index (UL) {PLC}         4         PLC Code         UL 746A	Relative Temp Index, Mech w/impact <sup>(1)</sup>	170	°C	UL 746B
Specific Gravity         1.36         -         ASTM D792           Mold Shrinkage, flow, 3.2 mm         0.5 − 0.7         %         SABIC method           Melt Flow Rate, 337°C/6.6 kgf         8.8         g/10 min         ASTM D1238           ELECTRICAL           Arc Resistance, Tungsten {PLC}         5         PLC Code         ASTM D495           High Voltage Arc Track Rate {PLC}         2         PLC Code         UL 746A           Comparative Tracking Index (UL) {PLC}         4         PLC Code         UL 746A	Relative Temp Index, Mech $w/o$ impact $^{(1)}$	170	°C	UL 746B
Mold Shrinkage, flow, 3.2 mm         0.5 – 0.7         %         SABIC method           Melt Flow Rate, 337°C/6.6 kgf         8.8         g/10 min         ASTM D1238           ELECTRICAL         FLC Code         ASTM D495           High Voltage Arc Track Rate {PLC}         2         PLC Code         UL 746A           Comparative Tracking Index (UL) {PLC}         4         PLC Code         UL 746A	PHYSICAL			
Melt Flow Rate, 337°C/6.6 kgf         8.8         g/10 min         ASTM D1238           ELECTRICAL         Arc Resistance, Tungsten {PLC}         5         PLC Code         ASTM D495           High Voltage Arc Track Rate {PLC}         2         PLC Code         UL 746A           Comparative Tracking Index (UL) {PLC}         4         PLC Code         UL 746A	Specific Gravity	1.36	-	ASTM D792
ELECTRICAL           Arc Resistance, Tungsten {PLC}         5         PLC Code         ASTM D495           High Voltage Arc Track Rate {PLC}         2         PLC Code         UL 746A           Comparative Tracking Index (UL) {PLC}         4         PLC Code         UL 746A	Mold Shrinkage, flow, 3.2 mm	0.5 – 0.7	%	SABIC method
Arc Resistance, Tungsten {PLC} 5 PLC Code ASTM D495 High Voltage Arc Track Rate {PLC} 2 PLC Code UL 746A  Comparative Tracking Index (UL) {PLC} 4 PLC Code UL 746A	Melt Flow Rate, 337°C/6.6 kgf	8.8	g/10 min	ASTM D1238
High Voltage Arc Track Rate {PLC} 2 PLC Code UL 746A  Comparative Tracking Index (UL) {PLC} 4 PLC Code UL 746A	ELECTRICAL			
Comparative Tracking Index (UL) {PLC} 4 PLC Code UL 746A	Arc Resistance, Tungsten {PLC}	5	PLC Code	ASTM D495
	High Voltage Arc Track Rate {PLC}	2	PLC Code	UL 746A
Hot-Wire Ignition (HWI), PLC 1 ≥3 mm UL 746A	Comparative Tracking Index (UL) {PLC}	4	PLC Code	UL 746A
	Hot-Wire Ignition (HWI), PLC 1	≥3	mm	UL 746A



PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Hot-Wire Ignition (HWI), PLC 2	≥0.75	mm	UL 746A
High Amp Arc Ignition (HAI), PLC 3	≥3	mm	UL 746A
High Amp Arc Ignition (HAI), PLC 4	≥0.75	mm	UL 746A
FLAME CHARACTERISTICS (1)			
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
INJECTION MOLDING			
Drying Temperature	150	°C	
Drying Time	4 – 6	Hrs	
Drying Time (Cumulative)	24	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	350 – 400	°C	
Nozzle Temperature	345 – 400	°C	
Front - Zone 3 Temperature	345 – 400	°C	
Middle - Zone 2 Temperature	340 – 400	°C	
Rear - Zone 1 Temperature	330 – 400	°C	
Mold Temperature	135 – 165	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw Speed	40 – 70	rpm	
Shot to Cylinder Size	40 – 60	%	
Vent Depth	0.025 – 0.076	mm	

<sup>(1)</sup> 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.

### **DISCLAIMER**

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