ULTEM™ Resin 2312EPR

REGION AMERICAS

DESCRIPTION

30% Milled glass filled, high flow Polyetherimide (Tg 217C) with internal mold release and enhanced electroplatability. ECO Conforming, UL94 V0 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 20240314

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	94	MPa	ASTM D638
Tensile Stress, brk, Type I, 5 mm/min	94	MPa	ASTM D638
Tensile Strain, yld, Type I, 5 mm/min	2	%	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	2	%	ASTM D638
Tensile Modulus, 5 mm/min	6480	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	156	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	5580	MPa	ASTM D790
Tensile Stress, yield, 5 mm/min	80	MPa	ISO 527
Tensile Stress, break, 5 mm/min	80	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	2	%	ISO 527
Tensile Strain, break, 5 mm/min	2	%	ISO 527
Tensile Modulus, 1 mm/min	5300	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	145	MPa	ISO 178
Flexural Modulus, 2 mm/min	5500	MPa	ISO 178
IMPACT			
Izod Impact, unnotched, 23°C	330	J/m	ASTM D4812
Izod Impact, notched, 23°C	39	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	15	J	ASTM D3763
Izod Impact, unnotched 80*10*4 +23°C	25	kJ/m²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	25	kJ/m²	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	5	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	5	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	5	kJ/m²	ISO 179/1eA

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	4	kJ/m²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	25	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	25	kJ/m²	ISO 179/1eU
THERMAL			
Vicat Softening Temp, Rate B/50	216	°C	ASTM D1525
HDT, 0.45 MPa, 3.2 mm, unannealed	204	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	199	°C	ASTM D648
HDT, 0.45 MPa, 6.4 mm, unannealed	206	°C	ASTM D648
HDT, 1.82 MPa, 6.4 mm, unannealed	202	°C	ASTM D648
CTE, -40°C to 150°C, flow	3.2E-05	1/°C	ASTM E831
CTE, -40°C to 150°C, xflow	3.5E-05	1/°C	ASTM E831
Thermal Conductivity	0.32	W/m-°C	ISO 8302
CTE, -40°C to 150°C, flow	3.7E-05	1/°C	ISO 11359-2
CTE, -40°C to 150°C, xflow	3.9E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	Passes	-	IEC 60695-10-2
Vicat Softening Temp, Rate B/50	211	°C	ISO 306
Vicat Softening Temp, Rate B/120	213	°C	ISO 306
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	204	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	192	°C	ISO 75/Af
Relative Temp Index, Elec [1]	105	°C	UL 746B
Relative Temp Index, Mech w/impact [1]	105	°C	UL 746B
Relative Temp Index, Mech w/o impact [1]	105	°C	UL 746B
PHYSICAL			
Specific Gravity	1.48	-	ASTM D792
Mold Shrinkage on Tensile Bar, flow	0.4 – 0.6	%	SABIC method
Mold Shrinkage, flow, 3.2 mm	0.4 – 0.6	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm	0.4 – 0.6	%	SABIC method
Melt Flow Rate, 337°C/6.6 kgf	13.7	g/10 min	ASTM D1238
Density	1.48	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	0.9	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.5	%	ISO 62
Melt Volume Rate, MVR at 360°C/5.0 kg	14	cm³/10 min	ISO 1133
ELECTRICAL			
Comparative Tracking Index (UL) {PLC}	4	PLC Code	UL 746A
Hot-Wire Ignition (HWI), PLC 1	≥3	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 2	≥1.5	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 3	≥0.75	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 4	≥0.4	mm	UL 746A
High Amp Arc Ignition (HAI), PLC 4	≥0.4	mm	UL 746A
High Voltage Arc Track Rate {PLC}	4	PLC Code	UL 746A
Arc Resistance, Tungsten {PLC}	5	PLC Code	ASTM D495
FLAME CHARACTERISTICS [1]			
UL Yellow Card Link	E121562-221101	-	-
UL Recognized, 94V-0 Flame Class Rating	≥0.4	mm	UL 94
INJECTION MOLDING			

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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	

(1) 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.

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