ULTEM™ Resin 4000

REGION AMERICAS

DESCRIPTION

Glass fiber, PTFE, and Graphite filled, standard flow Polyetherimide (Tg 217C). 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 20231109

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, brk, Type I, 5 mm/min	82	MPa	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	1.2	%	ASTM D638
Flexural Stress, yld, 2.6 mm/min, 100 mm span	113	MPa	ASTM D790
Flexural Stress, brk, 2.6 mm/min, 100 mm span	137	MPa	ASTM D790
Flexural Modulus, 2.6 mm/min, 100 mm span	8820	MPa	ASTM D790
Hardness, Rockwell M	85	-	ASTM D785
Taber Abrasion, CS-17, 1 kg	33	mg/1000cy	ASTM D1044
PV Limit, 0.51 m/s	2.1	MPa-m/s	SABIC method
K-factor xE-10, PV=2000 psi-fpm vs Steel	50	-	SABIC method
K-factor xE-10, PV=2000 psi-fpm vs Self	1900	-	SABIC method
Coefficient of Friction on steel, Static	0.25	-	ASTM D1894
Coefficient of Friction on steel,Kinetic	0.24	-	ASTM D1894
IMPACT			
Izod Impact, unnotched, 23°C	160	J/m	ASTM D4812
Izod Impact, notched, 23°C	64	J/m	ASTM D256
Izod Impact, Reverse Notched, 3.2 mm	170	J/m	ASTM D256
THERMAL			
Vicat Softening Temp, Rate B/50	233	°C	ASTM D1525
HDT, 1.82 MPa, 6.4 mm, unannealed	212	°C	ASTM D648
CTE, -40°C to 40°C, flow	1.62E-05	1/°C	ASTM E831
CTE, -20°C to 150°C, flow	1.62E-05	1/°C	ASTM E831
Relative Temp Index, Elec [1]	105	°C	UL 746B
Relative Temp Index, Mech w/impact [1]	105	°C	UL 746B

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Relative Temp Index, Mech w/o impact [1]	105	°C	UL 746B
PHYSICAL			
Specific Gravity	1.67	-	ASTM D792
Water Absorption, (23°C/24hrs)	0.11	%	ASTM D570
Mold Shrinkage, flow, 3.2 mm	0.2 – 0.3	%	SABIC method
Melt Flow Rate, 337°C/6.6 kgf	3.1	g/10 min	ASTM D1238
ELECTRICAL			
Comparative Tracking Index (UL) {PLC}	4	PLC Code	UL 746A
FLAME CHARACTERISTICS [1]			
UL Yellow Card Link	E121562-221109	-	-
UL Recognized, 94V-0 Flame Class Rating	0.84	mm	UL 94
INJECTION MOLDING			
Drying Temperature	135	°C	
Drying Time	4 – 6	Hrs	
Drying Time (Cumulative)	10	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	350 – 370	°C	
Nozzle Temperature	350 – 370	°C	
Front - Zone 3 Temperature	350 – 370	°C	
Middle - Zone 2 Temperature	345 – 365	°C	
Rear - Zone 1 Temperature	340 – 360	°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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