ULTEM™ Resin 4000

REGION EUROPE

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			
Taber Abrasion, CS-17, 1 kg	30	mg/1000cy	SABIC method
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
Tensile Stress, break, 5 mm/min	90	MPa	ISO 527
Tensile Strain, break, 5 mm/min	1	%	ISO 527
Tensile Modulus, 1 mm/min	9900	MPa	ISO 527
Flexural Stress, break, 2 mm/min	120	MPa	ISO 178
Flexural Modulus, 2 mm/min	7000	MPa	ISO 178
Ball Indentation Hardness, H358/30	140	MPa	ISO 2039-1
IMPACT			
Izod Impact, unnotched 80*10*4 +23°C	15	kJ/m²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	15	kJ/m²	ISO 180/1U
Charpy Impact, notched, 23°C	8	kJ/m²	ISO 179/2C
Charpy Impact, notched, -30°C	8	kJ/m²	ISO 179/2C
THERMAL			
Thermal Conductivity	0.43	W/m-°C	ISO 8302
CTE, 23°C to 150°C, flow	1.5E-05	1/°C	ISO 11359-2
CTE, 23°C to 150°C, xflow	5.E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	PASSES	-	IEC 60695-10-2
Vicat Softening Temp, Rate A/50	225	°C	ISO 306
Vicat Softening Temp, Rate B/50	215	°C	ISO 306
Vicat Softening Temp, Rate B/120	220	°C	ISO 306

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	210	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	205	°C	ISO 75/Ae
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			
Mold Shrinkage on Tensile Bar, flow	0.1 – 0.3	%	SABIC method
Density	1.68	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	0.7	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.3	%	ISO 62
Melt Volume Rate, MVR at 360°C/5.0 kg	5	cm³/10 min	ISO 1133
ELECTRICAL			
Volume Resistivity	1.E+15	Ω.cm	IEC 60093
Surface Resistivity, ROA	>1.E+15	Ω	IEC 60093
Relative Permittivity, 1 MHz	6.2	-	IEC 60250
Dissipation Factor, 50/60 Hz	0.013	-	IEC 60250
Dissipation Factor, 1 MHz	0.022	-	IEC 60250
Comparative Tracking Index (2)	200	V	IEC 60112
Comparative Tracking Index, M (2)	100	V	IEC 60112
Relative Permittivity, 50/60 Hz	6.8	-	IEC 60250
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
Glow Wire Flammability Index 960°C, passes at (2)	3.2	mm	IEC 60695-2-12
Oxygen Index (LOI)	48	%	ISO 4589
INJECTION MOLDING			
Drying Temperature	150	°C	
Drying Time	4 – 6	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	370 – 415	°C	
Nozzle Temperature	360 – 405	°C	
Front - Zone 3 Temperature	370 – 415	°C	
Middle - Zone 2 Temperature	360 – 405	°C	
Rear - Zone 1 Temperature	350 – 395	°C	
Hopper Temperature	80 – 120	°C	
Mold Temperature	140 – 180	°C	

(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.

(2) Value shown here is based on internal measurement.

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