

# ULTEM™ RESIN 4000

REGION EUROPE

## DESCRIPTION

Glass fiber, PTFE, and Graphite filled, standard flow Polyetherimide (Tg 217C). ECO Conforming, UL94 V0 listing.

## TYPICAL PROPERTY VALUES

Revision 20180524

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
<b>MECHANICAL</b>			
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
Hardness, H358/30	140	MPa	ISO 2039-1
<b>IMPACT</b>			
Izod Impact, unnotched 80*10*4 +23°C	15	kJ/m <sup>2</sup>	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	15	kJ/m <sup>2</sup>	ISO 180/1U
Charpy Impact, notched, 23°C	8	kJ/m <sup>2</sup>	ISO 179/2C
Charpy Impact, notched, -30°C	8	kJ/m <sup>2</sup>	ISO 179/2C
<b>THERMAL</b>			
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
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	105	°C	UL 746B
Relative Temp Index, Mech w/impact	105	°C	UL 746B

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Relative Temp Index, Mech w/o impact	105	°C	UL 746B
<b>PHYSICAL</b>			
Mold Shrinkage on Tensile Bar, flow (2) (5)	0.1 – 0.3	%	SABIC method
Density	1.68	g/cm <sup>3</sup>	ISO 1183
Water Absorption, (23°C/sat)	0.7	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.3	%	ISO 62
Melt Volume Rate, MVR at 360°C/5.0 kg	5	cm <sup>3</sup> /10 min	ISO 1133
<b>ELECTRICAL</b>			
Volume Resistivity	1.E+15	Ohm-cm	IEC 60093
Surface Resistivity, ROA	>1.E+15	Ohm	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	200	V	IEC 60112
Comparative Tracking Index, M	100	V	IEC 60112
Relative Permittivity, 50/60 Hz	6.8	-	IEC 60250
<b>FLAME CHARACTERISTICS</b>			
UL Recognized, 94V-0 Flame Class Rating (3)	0.84	mm	UL 94
Glow Wire Flammability Index 960°C, passes at	3.2	mm	IEC 60695-2-12
Oxygen Index (LOI)	48	%	ISO 4589
<b>INJECTION MOLDING</b>			
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	



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