

# ULTEM™ RESIN UF501 1S

REGION ASIA

## DESCRIPTION

Enhanced flow, Specialty filtered Polyetherimide (Tg 225C) with enhanced chemical resistance to strong acids, bases, aromatics and ketones. ECO Conforming.

## TYPICAL PROPERTY VALUES

Revision 20180905

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
<b>MECHANICAL</b>			
Tensile Stress, yld, Type I, 5 mm/min	100	MPa	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	75	MPa	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	8	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	60	%	ASTM D 638
Tensile Modulus, 5 mm/min	2900	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	138	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	3100	MPa	ASTM D 790
Tensile Stress, yield, 5 mm/min	100	MPa	ISO 527
Tensile Stress, break, 5 mm/min	85	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	8	%	ISO 527
Tensile Strain, break, 5 mm/min	50	%	ISO 527
Tensile Modulus, 1 mm/min	2900	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	110	MPa	ISO 178
Flexural Modulus, 2 mm/min	2900	MPa	ISO 178
<b>IMPACT</b>			
Izod Impact, unnotched, 23°C	2100	J/m	ASTM D 4812
Izod Impact, notched, 23°C	59	J/m	ASTM D 256
Izod Impact, notched, -30°C	-	J/m	ASTM D 256
Izod Impact, Reverse Notched, 3.2 mm	2080	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	30	J	ASTM D 3763
Izod Impact, unnotched 80*10*4 +23°C	NB	kJ/m <sup>2</sup>	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	NB	kJ/m <sup>2</sup>	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	5	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	5	kJ/m <sup>2</sup>	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	7	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	7	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	NB	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	NB	kJ/m <sup>2</sup>	ISO 179/1eU
<b>THERMAL</b>			
Vicat Softening Temp, Rate B/50	227	°C	ASTM D 1525
HDT, 0.45 MPa, 3.2 mm, unannealed	213	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	201	°C	ASTM D 648
HDT, 0.45 MPa, 6.4 mm, unannealed	216	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	204	°C	ASTM D 648

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
CTE, -40°C to 150°C, flow	5.5E-05	1/°C	ASTM E 831
CTE, -40°C to 150°C, xflow	5.5E-05	1/°C	ASTM E 831
Thermal Conductivity	0.31	W/m-°C	ASTM C177
CTE, 23°C to 150°C, flow	5.5E-05	1/°C	ISO 11359-2
CTE, 23°C to 150°C, xflow	5.5E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	Passes	-	IEC 60695-10-2
Vicat Softening Temp, Rate A/50	220	°C	ISO 306
Vicat Softening Temp, Rate B/50	215	°C	ISO 306
Vicat Softening Temp, Rate B/120	215	°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	200	°C	ISO 75/Ae
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	208	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	198	°C	ISO 75/Af
<b>PHYSICAL</b>			
Specific Gravity	1.28	-	ASTM D 792
Mold Shrinkage on Tensile Bar, flow	0.4 – 0.7	%	SABIC method
Mold Shrinkage, flow, 3.2 mm	0.4 – 0.7	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm	0.4 – 0.7	%	SABIC method
Melt Flow Rate, 337°C/6.6 kgf	11	g/10 min	ASTM D 1238
Density	1.28	g/cm <sup>3</sup>	ISO 1183
Water Absorption, (23°C/sat)	1.2	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.2	%	ISO 62
Melt Volume Rate, MVR at 360°C/5.0 kg	20	cm <sup>3</sup> /10 min	ISO 1133
<b>ELECTRICAL</b>			
Dielectric Strength, in oil, 3.2 mm	18	kV/mm	ASTM D 149
Relative Permittivity, 50/60 Hz	3.2	-	ASTM D 150
Dissipation Factor, 50/60 Hz	0.0021	-	ASTM D 150
Volume Resistivity	2.5E+15	Ohm-cm	IEC 60093
Surface Resistivity, ROA	>1.E+15	Ohm	IEC 60093
Dielectric Strength, in oil, 3.2 mm	18.1	kV/mm	IEC 60243-1
Dissipation Factor, 50/60 Hz	0.0021	-	IEC 60250
Comparative Tracking Index	150	V	IEC 60112
Comparative Tracking Index, M	100	V	IEC 60112
<b>INJECTION MOLDING</b>			
Drying Temperature	150	°C	
Drying Time	4 – 6	hrs	
Drying Time (Cumulative)	24	hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	365 – 390	°C	
Nozzle Temperature	360 – 380	°C	
Front - Zone 3 Temperature	365 – 390	°C	
Middle - Zone 2 Temperature	355 – 375	°C	
Rear - Zone 1 Temperature	345 – 365	°C	
Mold Temperature	135 – 165	°C	
Back Pressure	0.3 – 0.7	MPa	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Screw Speed	40 – 70	rpm	
Shot to Cylinder Size	40 – 60	%	
Vent Depth	0.025 – 0.076	mm	

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