SABIC Innovative Plastics™

Lexan* Resin HF1140R

Americas: COMMERCIAL

High flow grade. Heat stabilized. Enhanced level of mold release. FDA food contact compliant in limited colors. Effective January 15th, 2007 this grade will no longer be supported with biocompatibility information and should not be used for medical applications which require biocompatibility. Alternative grade HP1R.

Property

TYPICAL PROPERTIES (1)			
MECHANICAL	Value	Unit	Standard
Tensile Stress, yld, Type I, 50 mm/min	62	MPa	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	65	MPa	ASTM D 638
Tensile Strain, yld, Type I, 50 mm/min	6	%	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	120	%	ASTM D 638
Tensile Modulus, 50 mm/min	2370	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	93	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	2300	MPa	ASTM D 790
Hardness, Rockwell M	70	-	ASTM D 785
Hardness, Rockwell R	118	-	ASTM D 785
Taber Abrasion, CS-17, 1 kg	10	mg/1000cy	ASTM D 1044
Tensile Stress, yield, 50 mm/min	63	MPa	ISO 527
Tensile Stress, break, 50 mm/min	50	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	6	%	ISO 527
Tensile Strain, break, 50 mm/min	70	%	ISO 527
Tensile Modulus, 1 mm/min	2350	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	90	MPa	ISO 178
Flexural Modulus, 2 mm/min	2300	MPa	ISO 178
IMPACT	Value	Unit	Standard
Izod Impact, unnotched, 23°C	3204	J/m	ASTM D 4812
Izod Impact, notched, 23°C	640	J/m	ASTM D 256
Izod Impact, notched (natural, tints)	640	J/m	ASTM D 256
Tensile Impact, Type "S"	378	kJ/m²	ASTM D 1822
Falling Dart Impact (D 3029), 23°C	169	J	ASTM D 3029
Instrumented Impact Energy @ peak, 23°C	54	J	ASTM D 3763
Izod Impact, unnotched 80*10*4 +23°C	NA	kJ/m²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	NA	kJ/m²	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	12	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	10	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	12	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	10	kJ/m²	ISO 179/1eA
THERMAL	Value	Unit	Standard
HDT, 1.82 MPa, 3.2mm, unannealed	126	°C	ASTM D 648
HDT, 0.45 MPa, 6.4 mm, unannealed	137	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	126	°C	ASTM D 648
CTE, -40°C to 95°C, flow	6.84E-05	1/°C	ASTM E 831
Specific Heat	1.25	J/g-°C	ASTM C 351
Thermal Conductivity	0.19	W/m-°C	ASTM C 177

Thermal Conductivity	0.2	W/m-°C	ISO 8302
CTE, 23°C to 80°C, flow	7.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	145	°C	ISO 306
Vicat Softening Temp, Rate B/50	139	°C	ISO 306
Vicat Softening Temp, Rate B/120	140	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	133	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	121	°C	ISO 75/Ae
Relative Temp Index, Elec	130	°C	UL 746B
Relative Temp Index, Mech w/impact	130	°C	UL 746B
Relative Temp Index, Mech w/o impact	130	°C	UL 746B
PHYSICAL	Value	Unit	Standard
Specific Gravity	1.2	-	ASTM D 792
Specific Volume	0.83	cm³/g	ASTM D 792
Density	1.19	g/cm³	ASTM D 792
Water Absorption, 24 hours	0.15	%	ASTM D 570
Water Absorption, equilibrium, 23C	0.35	%	ASTM D 570
Water Absorption, equilibrium, 100°C	0.58	%	ASTM D 570
Mold Shrinkage, flow, 3.2 mm	0.5 - 0.7	%	SABIC Method
Melt Flow Rate, 300°C/1.2 kgf	25	g/10 min	ASTM D 1238
Melt Volume Rate, MVR at 300°C/1.2 kg	23	cm³/10 min	ISO 1133
OPTICAL	Value	Unit	Standard
Light Transmission	88	%	ASTM D 1003
Haze	1	%	ASTM D 1003
Refractive Index	1.586	-	ASTM D 542
ELECTRICAL	Value	Unit	Standard
Volume Resistivity	>1.E+17	Ohm-cm	ASTM D 257
Dielectric Strength, in air, 3.2 mm	14.9	kV/mm	ASTM D 149
Relative Permittivity, 50/60 Hz	3.17	-	ASTM D 150
Relative Permittivity, 1 MHz	2.96	-	ASTM D 150
Dissipation Factor, 50/60 Hz	0.0009	-	ASTM D 150
Dissipation Factor, 1 MHz	0.01	-	ASTM D 150
Hot Wire Ignition {PLC)	2	PLC Code	UL 746A
High Voltage Arc Track Rate {PLC}	2	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	1	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	2	PLC Code	UL 746A
Volume Resistivity	>1.E+15	Ohm-cm	IEC 60093
Surface Resistivity, ROA	>1.E+15	Ohm	IEC 60093
Dielectric Strength, in oil, 0.8 mm	35	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 1.6 mm	27	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 3.2 mm	17	kV/mm	IEC 60243-1
Relative Permittivity, 50/60 Hz	2.7	-	IEC 60250
Relative Permittivity, 1 MHz	2.7	-	IEC 60250
Dissipation Factor, 50/60 Hz	0.001	-	IEC 60250
Dissipation Factor, 1 MHz	0.01	-	IEC 60250
FLAME CHARACTERISTICS	Value	Unit	Standard
UL Recognized, 94V-2 Flame Class Rating (3)	1.09	mm	UL 94
Oxygen Index (LOI)	25	%	ISO 4589

Source GMD, last updated:12/01/2006

Processing

Parameter Injection Molding	Value	Unit
Drying Temperature	120	°C

Drying Time	3 - 4	hrs
Drying Time (Cumulative)	48	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	270 - 295	°C
Nozzle Temperature	265 - 290	°C
Front - Zone 3 Temperature	270 - 295	°C
Middle - Zone 2 Temperature	260 - 280	°C
Rear - Zone 1 Temperature	250 - 270	°C
Mold Temperature	70 - 95	°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

Source GMD, last updated:12/01/2006

THESE PROPERTY VALUES ARE NOT INTENDED FOR SPECIFICATION PURPOSES.

PLEASE CHECK WITH YOUR (LOCAL SALES OFFICE) FOR AVAILABILITY IN YOUR REGION

(1) Typical values only. Variations within normal tolerances are possible for various colors. All values are measured after at least 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume and melt flow rates, are measured on injection molded samples. All samples tested under ISO test standards are prepared according to ISO 294.
(2) Only typical data for selection purposes. Not to be used for part or tool design.
(3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.
(4) Internal measurements according to UL standards.