

ELIX ABS M305

Grade for smart cards, good dimensional accuracy, excellent dynamic loading capacity

Typical properties

Property	Test Condition	Standard	Unit Value		Unit Value	
			SI Metrics		US Conventional	
Rheological properties						
Melt volume-flow rate	220°C, 10kg	ISO 1133	cm ³ /10min	12		
Melt flow rate	230°C, 3.8kg	ASTM D1238			g/10min	5
Molding shrinkage, parallel	60x60x2 mm	ISO 294-4	%	0.5-0.8		
Molding shrinkage, normal	60x60x2 mm	ISO 294-4	%	0.5-0.8		
Mechanical properties (23°C /50% H.R.)						
Yield stress	50 mm/min	ISO 527-1,2	MPa	45		
	5 mm/min	ASTM D 638	MPa	42	psi	6100
Yield strain	50 mm/min	ISO 527-1, -2	%	2.5		
Tensile Strain at break	50 mm/min	acc. ISO 527-1,2	%	>15		
	5 mm/min	ASTM D 638			%	>15
Tensile modulus	1 mm/min	ISO 527-1,2	MPa	2300		
	5 mm/min	ASTM D 638			psi	334000
Flexural modulus	2 mm/min	ISO 178	MPa	2300		
	1.3 mm/min	ASTM D 790			psi	334000
Flexural strength	2 mm/min	ISO 178	MPa	68	psi	9900
Izod notched impact strength	23 °C (73°F)	ISO 180-1A	kJ/m ²	21	ft-lb/in ²	10.0
	-30 °C (-22°F)	ISO 180-1A	kJ/m ²	11	ft-lb/in ²	5.2
	73°F (23°C)	ASTM D 256 (3.2mm) 1/8"	J/m	275	ft-lb/in	5.1
	73°F (23°C)	ASTM D 256 (6.4mm) 1/4"	J/m	200	ft-lb/in	3.8
	-22°F (-30°C)	ASTM D 256 (3.2mm) 1/8"	J/m	145	ft-lb/in	2.7
Charpy impact strength	23 °C (73°F)	ISO 179-1eU	kJ/m ²	150	ft-lb/in ²	71.7
Charpy impact strength	-30 °C (-22°F)	ISO 179-1eU	kJ/m ²	110	ft-lb/in ²	52.6
Charpy notched impact strength	23 °C (73°F)	ISO 179-1eA	kJ/m ²	21	ft-lb/in ²	10.0
Charpy notched impact strength	-30 °C (-22°F)	ISO 179-1eA	kJ/m ²	11	ft-lb/in ²	5.2
Ball indentation hardness		ISO 2039-1	N/mm ²	95		
Thermal properties						
Vicat softening temperature	B50; 50°C/h	ISO 306	°C	99		
	50N; 50°C/h	ASTM D 1525			°F	210
Deflection temperature under load*	1.80 MPa	ISO 75-1,2	°C	94	°F	201
Deflection temperature under load*	0.45 MPa	ISO 75-1,2	°C	98	°F	208
CLTE, parallel	23 to 55°C	ISO 11359 -1,2	10 ⁻⁴ /K	0.9		
Burning behavior UL 94	1.6 mm	UL 94	Class	HB		
Burning rate (US-FMVSS)	200x105x2mm	ISO 3795	mm/min	50	in/min	1.9
Glow wire test (GWFI)	2.0 mm	IEC 60695-2-12	°C	700		
Electrical properties (23 °C/50 % r.h.)						
Relative permittivity	100 Hz	IEC 60250		3.1		
Relative permittivity	1 MHz	IEC 60250		2.9		
Dissipation factor	100 Hz	IEC 60250	10 ⁻⁴	50		
Dissipation factor	1 MHz	IEC 60250	10 ⁻⁴	80		

Volume resistivity		IEC 60093	Ohm·m	1E13	
Surface resistivity		IEC 60093	Ohm	1E15	
Electric strength	1 mm	IEC 60243-1	kV/mm	34	
Comparative tracking index CTI	Solution A	IEC 60112	Rating	600	
Processing conditions for test specimens					
Injection molding-melt temperature		ISO 294	°C	240	°F 464
Injection molding-mold temperature		ISO 294	°C	70	°F 158
Injection molding-injection velocity		ISO 294	mm/s	240	in/s 9.5

*(annealed 4h/80°C; 4h/176°F)

Note: control measurements in other places may issue different results due to influences of machinery, equipment, test method or storage conditions.

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Test values

Unless specified to the contrary, the values given have been established on standardised test specimens at room temperature. The figures should be regarded as guide values only and not as binding minimum values. Kindly note that, under certain conditions, the properties can be affected to a considerable extent by the design of the mould/die, the processing conditions and the colouring.

Processing note

Under the recommended processing conditions small quantities of decomposition product may be given off during processing. To preclude any risk to the health and well-being of the machine operatives, tolerance limits for the work environment must be ensured by the provision of efficient exhaust ventilation and fresh air at the workplace in accordance with the Safety Data Sheet. In order to prevent the partial decomposition of the polymer and the generation of volatile decomposition products, the prescribed processing temperatures should not be substantially exceeded. Since excessively high temperatures are generally the result of operator error or defects in the heating system, special care and controls are essential in these areas.

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