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## ELIX ULTRA HH 4115 HI

Very high heat resistance ABS with extreme impact resistance

ISO shortname: ISO 2580-1 ABS 2-X, MG, 115-15-35-20

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### ***Major Benefits***

- . Extreme impact resistance with low temperature ductility
- . Very high impact up to -30°C
- . Well balanced flowability and heat resistance
- . Lower density than PC/ABS
- . Low emission and odor grade
- . Lower mould deposits in injection molding processing applications
- . Better dimensional under heat

### ***Chemical composition***

Acrylonitrile-butadiene-styrene (ABS) copolymer modified with polycarbonate and poly(styrene-co-maleimide)

### ***Physical form***

White to slightly yellowish pellets.

### ***Handling information***

Please see the Material Safety Data Sheet for relevant health & safety information.

### Typical properties<sup>1</sup>

Property	Test Condition	Standard	Unit Value		Unit Value	
			SI Metrics		US Conventional	
<b>Rheological properties</b>						
Melt volume-flow rate	260°C, 5kg	ISO 1133	cm <sup>3</sup> /10min	14		
Melt flow rate	230°C, 3.8kg	ASTM D1238			g/10min	3
Molding shrinkage, parallel	60x60x2 mm	ISO 294-4	%	0.65-0.75		
Molding shrinkage, normal	60x60x2 mm	ISO 294-4	%	0.65-0.75		
<b>Mechanical properties (23°C /50% H.R.)</b>						
Yield stress	50 mm/min	ISO 527-1,2	MPa	42		
	5 mm/min	ASTM D 638	MPa	39	psi	5650
Strain at yield	5 mm/min	ISO 527-1,2	%	7		
Strain at break	50 mm/min	ISO 527-1,2	%	53		
	5 mm/min	ASTM D 638			%	53
Tensile modulus	1 mm/min	ISO 527-1,2	MPa	2000		
	5 mm/min	ASTM D 638			psi	290000
Flexural modulus	2 mm/min	ISO 178	MPa	2000		
	1.3 mm/min	ASTM D 790			psi	290000
Flexural strength	2 mm/min	ISO 178	MPa	68	psi	9850
Izod notched impact strength	23 °C (73°F)	ISO 180-1A	kJ/m <sup>2</sup>	58	ft-lb/in <sup>2</sup>	27.6
	-30 °C (-22°F)	ISO 180-1A	kJ/m <sup>2</sup>	41	ft-lb/in <sup>2</sup>	19.5
	73°F (23°C)	ASTM D 256 (3.2mm) 1/8"	J/m	780	ft-lb/in	14.6
	73°F (23°C)	ASTM D 256 (6.4mm) 1/4"	J/m	565	ft-lb/in	10.6
	-22°F (-30°C)	ASTM D 256 (3.2mm) 1/8"	J/m	505	ft-lb/in	9.4
Charpy notched impact strength	23 °C (73°F)	ISO 179-1eA	kJ/m <sup>2</sup>	53	ft-lb/in <sup>2</sup>	25.3
	-22°F (-30°C)	ISO 179-1eA	kJ/m <sup>2</sup>	40	ft-lb/in <sup>2</sup>	19.1
Ball indentation hardness		ISO 2039-1	N/mm <sup>2</sup>	90		
<b>Thermal properties</b>						
Vicat softening temperature	B50;50°C/h	ISO 306	°C	113		
	50N;50°C/h	ASTM D 1525			°F	235
	B120;120°C/h	ISO 306	°C	115	°F	239
Deflection temperature under load*	1.80 MPa	ISO 75-1,2	°C	101	°F	214
Deflection temperature under load*	0.45 MPa	ISO 75-1,2	°C	113	°F	235
CLTE, parallel	23 to 55°C	ISO 11359 -1,2	10 <sup>-4</sup> /K	0.89		
Burning behavior UL 94	1.6 mm	UL 94	Class	HB		
Burning rate (US-FMVSS)	200x105x2mm	ISO 3795	mm/min	< 40	in/min	< 1.6
<b>Other properties (23°C)</b>						
Density	25°C	ISO 1183-1	g/cm <sup>3</sup>	1.07	lb/in <sup>3</sup>	0.0386
<b>Emission Properties</b>						
VOC total emission	23°C	VDA 278	µg/g	< 10	< 10	
FOG total emission	23°C	VDA 278	µg/g	< 5	< 5	
Total carbon emission	23°C	VDA 277	µgC/g	< 25	< 25	
<b>Processing conditions for test specimens</b>						
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)

Notes: 1.control measurements in other places may issue different results due to influences of machinery, equipment, test method or storage conditions

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## ***Disclaimer for sales products***

### Disclaimer for sales products

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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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