

AVALON® 90 AE

Thermoplastic Polyurethane Elastomer (Polyester)

Huntsman Corporation

Message:

AVALON 90 AE is a high performance polyester based thermoplastic polyurethane for injection moulding.
AVALON 90 AE is part of the AVALON Perform Range and offers a premium soling material for sports footwear.
The features offered include:
Durability
Excellent surface definition
Abrasion resistance
Flex resistance
Phthalate free TPU

General Information			
Features	Good wear resistance		
	Durability		
	Excellent appearance		
Uses	Sporting goods		
	Footwear		
Forms	Particle		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Density	1.23	g/cm ³	ISO 2781
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness			ISO 868
Shaw A	90		ISO 868
Shaw D	44		ISO 868
Mechanical	Nominal Value	Unit	Test Method
Ross Flex ¹ (-10°C)	2.5E+5	Cycles	
Abrasion Resistance	35.0	mm ³	ISO 4649
Elastomers	Nominal Value	Unit	Test Method
Tensile Stress			ISO 37
100% strain	7.00	MPa	ISO 37
300% strain	12.0	MPa	ISO 37
Tensile Stress (Break)	30.0	MPa	ISO 37
Tensile Elongation (Break)	450	%	ISO 37
Tear Strength ²	110	kN/m	ISO 34-1
Compression Set (23°C)	20	%	ISO 815
Additional Information			
Test plates conditioned 20 hours at 100°C before testing			

Injection	Nominal Value	Unit
Drying Temperature - Desiccant Dryer	80.0 - 90.0	°C
Drying Time - Desiccant Dryer	2.0	hr
Hopper Temperature	25.0 - 35.0	°C
Rear Temperature	185 - 195	°C
Middle Temperature	190 - 200	°C
Front Temperature	195 - 205	°C
Nozzle Temperature	180 - 190	°C
Mold Temperature	25.0 - 50.0	°C
Injection Pressure	2.00 - 10.0	MPa
Injection Rate	Slow	
Holding Pressure	1.00 - 5.00	MPa
Back Pressure	0.0300 - 0.300	MPa
Screw Speed	20 - 80	rpm
Screw L/D Ratio	20.0:1.0 to 25.0:1.0	
Screw Compression Ratio	2.0 : 1.0 - 3.0 : 1.0	

Injection instructions

Typical Screw Diameter : 40 - 120 mm³ Stage Design

Feed Zone : 0.4L

Compression Zone : 0.3L

Metering Zone : 0.3L

NOTE

1. BS 5131
2. Method B, right-angle specimen
(without cut)

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