

# AVALON® 90 AK

Thermoplastic Polyurethane Elastomer  
Huntsman Corporation

Message:

AVALON 90 AK is a UV-stabilised, high performance, thermoplastic polyurethane-based material for injection moulding. AVALON 90 AK is part of the AVALON Crystal Range and offers a specially designed, flexible material with a higher degree of transparency compared with conventional TPU at the same hardness. AVALON Crystal materials are particularly suitable for the sporting goods and fashion markets. It is recommended that a suitable UV stabiliser be incorporated for most applications to prevent premature yellowing.

The features offered include:

Transparency

Durability

General Information			
Additive	UV stabilizer		
Features	Good UV resistance		
	Good flexibility		
	Durability		
Uses	Sporting goods		
	Footwear		
Appearance	Clear/transparent		
Forms	Particle		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Density	1.21	g/cm <sup>3</sup>	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 <sup>1</sup>			
-10°C	> 5.0E+4	Cycles	
23°C	> 5.0E+4	Cycles	
Abrasion Resistance	50.0	mm <sup>3</sup>	ISO 4649
Elastomers	Nominal Value	Unit	Test Method
Tensile Stress			ISO 37
100% strain	8.00	MPa	ISO 37
300% strain	16.0	MPa	ISO 37
Tensile Stress (Break)	45.0	MPa	ISO 37
Tensile Elongation (Break)	450	%	ISO 37
Tear Strength <sup>2</sup>	110	kN/m	ISO 34-1

## 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	195 - 205	°C
Middle Temperature	205 - 215	°C
Front Temperature	210 - 220	°C
Nozzle Temperature	205 - 215	°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<br>(without cut) |

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## Recommended distributors for this material

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