

# AVALON® 90 ABR

Thermoplastic Polyurethane Elastomer (Polyester)

Huntsman Corporation

## Message:

AVALON 90 ABR is a high performance polyester based thermoplastic polyurethane for injection moulding applications. AVALON 90 ABR is part of the AVALON Perform Range and offers a premium soling material for demanding applications where exceptional abrasion resistance is required such as soccer studs and sports cleats.

The features offered include:

- Cut and scratch resistance
- Excellent abrasion resistance
- Cold flex resistance
- Phthalate free TPU

General Information			
Features	Good wear resistance		
	Scratch resistance		
Uses	Sporting goods		
	Footwear		
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
Flexural Modulus (23°C)	42.0	MPa	ISO 178
Ross Flex <sup>1</sup> (-10°C)	2.5E+5	Cycles	
Abrasion Resistance	20.0	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)	32.0	MPa	ISO 37
Tensile Elongation (Break)	450	%	ISO 37
Tear Strength <sup>2</sup>	120	kN/m	ISO 34-1
Compression Set (23°C)	20	%	ISO 815
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	190 - 210	°C
Middle Temperature	195 - 205	°C
Front Temperature	200 - 210	°C
Nozzle Temperature	185 - 195	°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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