



PRODUCT DATA

AVALON 85 AE

Thermoplastic Polyurethane

INTRODUCTION

Avalon 85 AE is a high performance polyester based thermoplastic polyurethane for injection moulding.

Avalon 85 AE is part of the Avalon Perform Range and offers a premium soling material for sports and protective footwear.

The benefits offered are :

- Durability
- Excellent surface definition
- Abrasion resistance
- Flex resistance

Table 1: Typical Processing Properties			
Property	Method	Unit	Value
Density	ISO 2781	g/cm ³	1.22
Hardness, Shore A (cured)	ISO 868	A	85
Hardness, Shore D	ISO 868	D	37
Tensile Strength	ISO 37	MPa	28
Elongation at Break	ISO 37	%	500
100% Modulus	ISO 37	MPa	6
300% Modulus	ISO 37	MPa	10
Tear Strength (Angle)	ISO 34B	kN/M	90
Compression Set @23°C	ISO 815	%	16
Abrasion Resistance	ISO 4649	Mm3	50
Ross Flex @ -10°C	BS 5131	-	>250k

NE = Not Evaluated

NA = Not Applicable

HEALTH AND SAFETY ADVICE

Before undertaking any trials with this product it is essential that all personnel are aware of the necessary precautions that must be taken. These are detailed in the relevant Safety Data Sheet which will be provided by Huntsman Polyurethanes

POLYMER SELECTION

Before selecting this product it is necessary that the user ensures it's performance will meet all operational and end use requirements. Having satisfied these requirements, should changes be contemplated in method of application, materials, service conditions or any other change that could affect the ultimate performance of the end product, then further tests and trials should be carried out.

For assistance with particular problems and applications, please contact the Avalon TPU Technical Service Department.

PACKAGING & STORAGE

Avalon TPU is supplied in 20 or 25 kg moisture guarded sacks, 40 per pallet and shrink wrapped.

Avalon Thermoplastic Polyurethanes may be stored for 24 months from the date of manufacture, sealed in the manufacturers original packaging



AVALON 85 AE

Thermoplastic Polyurethane

MATERIAL PREPARATION

Avalon TPU grades are supplied pre dried in moisture guarded sacks.

To ensure trouble free processing and high quality injection moulded parts, it is preferable to dry Avalon TPU grades. The recommended drying conditions are 2hrs at 80-90°C in a desiccant dryer.

For specific advice on colouring Avalon TPU grades, the use of additives and regrind, please contact the Avalon TPU Technical Service group.

SCREW DESIGN

Injection moulding machines with general purpose Polyethylene type 3 stage screws are most suitable for processing Avalon TPU grades.

High shear screws with mixing pins, Nylon type screws or short compression stage screws are not recommended.

The most suitable configuration is listed in Table 2.

MOULD CONSIDERATIONS

To avoid shear degradation the runner system should be as generous as possible with a full round / circular or trapezoid section offering the best results.

Gating should be as large as possible with a relatively short length to ensure maximum transference of holding pressure. Most designs are appropriate with the exception of submarine and pin gating.

Mould cavities with a sand blasted finish will improve demoulding.

Standard venting techniques should be employed to eliminate air trapping and burn marks.

Table 2: Typical Processing Parameters

Typical Screw Diameter	40 - 120 mm
L/D Ratio	20 – 25 :1
Compression ratio	2.0 – 3.0 :1
3 Stage Design	
Feed Zone	0.4L
Compression Zone	0.3L
Metering Zone	0.3L
Screw rotation speed	20 – 80 rpm
Injection pressure	20 – 100 Bar
Secondary or holding pressure	10 - 50 Bar
Back pressure	0.3 - 3 Bar
Injection speed	As slow as possible
Mould temperature	26 - 50°C
Temperature profile:	
Feed Zone	25 - 35°C
Rear Zone	185 – 195°C
Centre Zone	190 – 200°C
Front Zone	195 – 205°C
Nozzle Tip	180 - 190°C

Enquiries should be addressed to the nearest Huntsman ICI Sales Office or to: Huntsman ICI Europe Limited, Everslaan 45, B-3078 Everberg, Belgium.
Tel: +32 2 758 98 74 Fax: +32 2 759 9018

The address of your nearest technical centre is:
Huntsman ICI Polyurethanes (UK) Limited, Hitchen Lane, Shepton Mallet, Somerset. BA4 5TZ United Kingdom.

Tel: +44 1749 343061 Fax: +44 1749 346041

The manufacture of polyurethanes and polymer foams is the subject of granted patents and patent applications; freedom to operate patented processes is not implied by this publication.

The information and recommendations in this publication are to the best of our knowledge information and belief accurate at the time of publication. Nothing herein is to be construed as a warranty, express or otherwise. In all cases, it is the responsibility of users to determine the applicability of such information of the suitability of any product for their own particular purpose.

All sales of this product shall be subject to Huntsman ICI Holdings LLC and/or its subsidiaries' standard conditions of sale. Huntsman Polyurethanes is a business group of Huntsman ICI Chemicals LLC.