



PRODUCT DATA

AVALON® 85 ABR

Thermoplastic Polyurethane

INTRODUCTION

AVALON 85 ABR is a high performance polyester based thermoplastic polyurethane for injection moulding applications.

AVALON 85 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

Table 1: Typical Physical Properties ⁽¹⁾

Property	Method	Unit	Value
Density	DIN 53479	g/cm ³	1.20
Hardness, Shore A	DIN 53505	A	83-87
Hardness, Shore D	DIN 53505	D	-
Tensile Strength	DIN 53504	MPa	25
Elongation at Break	DIN 53504	%	400
100% Modulus	DIN 53504	MPa	-
300% Modulus	DIN 53504	MPa	-
Tear Strength (Angle)	DIN 53515	kN/m	80
Compression Set @ 23°C	DIN 53517	%	20
Abrasion Resistance	DIN 53516	mm ³	20
Ross Flex @ -10°C	BS 5131	k.cycles	250
Flexural Modulus @ 23°C	ASTM D 790	MPa	30

⁽¹⁾ : Test plates conditioned 20 hours at 100°C before testing

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 that will be provided by Huntsman Polyurethanes.

POLYMER SELECTION

Before selecting this product it is necessary that the user ensures its 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 25 kg moisture guarded sacks, 40 or 45 per pallet and shrink wrapped.

AVALON 85 ABR has an expected shelf life of minimum 12 months after shipment date. The product should be stored in a dry and cool place in the manufacturer's original packaging.



PRODUCT DATA

AVALON® 85 ABR

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.

However polished moulds give best transparency properties.

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

Enquiries should be addressed to the nearest Huntsman Sales Office or to: Huntsman (Europe) BVBA, Everslaan 45, B-3078 Everberg, Belgium. Tel: +32 2 758 98 74 Fax: +32 2 758 90 18

The address of your nearest technical centre is:

Huntsman (Europe) BVBA, Everslaan 45, B-3078 Everberg, Belgium. Tel: +32 2 758 98 74 Fax: +32 2 758 90 18

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	25 – 50°C
Temperature profile:	
Feed Zone	25 – 35°C
Rear Zone	190 – 200°C
Centre Zone	195 – 205°C
Front Zone	200 – 210°C
Nozzle Tip	185 – 195°C

Huntsman Polyurethanes warrants only that its products meet the specifications agreed with the buyer. Typical properties, where stated, are to be considered as representative of current production and should not be treated as specifications. The manufacture of polyurethane materials and polymeric foams is the subject of granted patents and patent applications; freedom to operate patented processes is not implied by this publication. While all the information and recommendations in this publication are, to the best of our knowledge, information and belief, accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE. IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE. The behaviour of the products referred to in this publication in manufacturing processes and their suitability in any given end-use environment are dependent upon various conditions such as chemical compatibility, temperature, and other variables, which are not known to Huntsman Polyurethanes. It is the responsibility of the user to evaluate the manufacturing circumstances and the final product under actual end-use requirements and to adequately advise and warn purchasers and users thereof. Products may be toxic and require special precautions in handling. The user should obtain Safety Data Sheets from Huntsman Polyurethanes containing detailed information on toxicity, together with proper shipping, handling and storage procedures, and should comply with all applicable safety and environmental standards. Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent on manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users. Except where explicitly agreed otherwise, the sale of products referred to in this publication is subject to the general terms and conditions of sale of Huntsman International LLC or of its affiliated companies. Huntsman Polyurethanes is an international business unit of Huntsman International LLC. Huntsman Polyurethanes trades through Huntsman affiliated companies in different countries such as Huntsman International LLC in the USA and Huntsman Holland BV in Western Europe.

AVALON is a registered trademark of Huntsman International LLC in one or more countries, but not all countries.

Copyright © 2001 Huntsman International LLC. All rights reserved.

