

Product Data Sheet

AVALON[®] 65 AB

Thermoplastic Polyurethane

PRODUCT DESCRIPTION

AVALON[®] 65 AB is a high performance polyester based thermoplastic polyurethane for injection moulding and casting.

APPLICATIONS

AVALON[®] 65 AB is part of the AVALON Soft Range and offers a premium soling material for casual, sport and protective footwear.

PERFORMANCE FEATURES

The features offered include :

- Durability
- Excellent surface definition
- High abrasion resistance
- Good flex resistance
- Contains no phthalate plasticizer

TYPICAL PRODUCT IDENTIFICATION

Table 1 : Typical Physical Properties (1)

Properties	Value	Unit	Test Method
Hardness	67	Shore A	IG09-A01
Tensile strength	20	MPa	IG05-B03
Elongation	650	%	IG05-B01
Elongation at break	650	%	IG05-B01
Tear strength	35	N/mm	IG05-B02
Abrasion resistance	< 60	mm ³	ISO 4649

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

2 hrs 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.

PROCESSING PARAMETERS

ESSENTIAL MOULDING MACHINE REQUIREMENTS : Accurate machine temperature control +/- 1°C, Machine hydraulic pressure > 160 bar, Non return valve on hydraulics, Shut off nozzle, Ability to set back pressure, Mould temperature control.

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 the next Table.

Properties	Value
Viscosity (20 °C)	600 mPa.s
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Typical screw diameter	40 - 120 mm
L/D ratio	20 - 25 : 1
Screw rotation speed	20 - 80 rpm
Injection pressure	20 - 100 bar
Secondary or holding pressure	10 - 50 bar
Physical state	Solid

Properties	Value
Feed zone	0.4 l
Feed zone	25 - 35 °C
Compression zone	0.3 L
Metering zone	0.3 l

Properties	Value
Feed zone	25 - 35 #C
Rear zone	165 - 185 #C

Properties	Value
Centre zone	165 - 185 #C
Front zone	165 - 185 #C
Nozzle tip	165 - 185 #C

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.

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 trails should be carried out. For assistance with particular problems and applications, please contact the AVALON TPU Technical Service Department.

PACKAGING AND STORAGE

AVALON[®] 65 AB is supplied in 25 kg moisture guarded sacks, 40 or 45 per pallet and shrink wrapped. AVALON Thermoplastic Polyurethanes 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.

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.

For further information, please contact your nearest sales office: http://www.huntsman.com/PU_customer_service

Warranty: 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 LLC or an affiliate thereof, in one or more countries, but not all countries. Copyright © 2004 Huntsman LLC or an affiliate thereof. All rights reserved.