

# Arnitel® U & C Extrusion Grades

## TPC-ES

Print date: 2024-03-12

### **Grade coding**

Arnitel® U and Arnitel® C Extrusion grades.

### **MATERIAL HANDLING**

#### **Drying**

Arnitel® Extrusion grades supplied pre-dried, in moisture proof bags. The moisture content is low enough to permit immediate extrusion for most applications but pre-drying will improve the performance of the final polymer even more. Please check if bags are undamaged. Moisture absorption: when exposed to air, ArnitelU & C absorbs moisture. Small quantities of absorbed moisture in the ArnitelU & C granules can cause degradation during processing. This might result in varying molecular weights, leading to a decrease in mechanical performance and to irregular throughput.

Please take the following pre-cautions:

- allow material that has been stored in a relatively cold room to adapt slowly to the temperature in the processing room
- do not open the packages until the extruder is heated and ready for production
- always feed the entire contents of one or more bags into the hopper and close the hopper tightly
- do not refill the hopper until there is room for the entire contents of a bag
- always try to refill the hopper to the top
- ensure the hopper size is adapted to the consumption in order to limit residence time of the material

It is required to dry the granulate in a desiccant dryer to assure a low moisture level [below 500 ppm]. The hopper of the dryer should preferably be mounted directly on the extruder. The granules must be dried for at least 2 -3 hours prior to processing at 120°C.

In cases where bags have been exposed to the ambient air for a certain period of time it is advised to dry the material for 8 hours at 110 °C in a desiccant dryer.

#### **All the trademarks mentioned here are trademarks of Envalior.**

Seller represents and warrants exclusively that on the date of delivery by Seller the product shall be in conformity with the specifications agreed upon. Seller makes no other representations or warranties, whether express or implied.

Seller is not responsible or liable for the design of the products of the Customer and it is the responsibility of the Customer to determine that the Seller's product is safe, complies with application laws and regulations, and is technically or otherwise fit for its intended use. Seller does not endorse or claim suitability of its products for a specific application and disclaims each and every representation or warranty, whether express or implied, in that respect.

Typical values are indicative only and are not to be construed as being binding specifications. Colorants in the product or other additives may cause significant variations in typical values.

Copyright © Envalior 2023. All rights reserved. No part of the information may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of Envalior.

# Arnitel® U & C Extrusion Grades

Print date: 2024-03-12

## MACHINERY

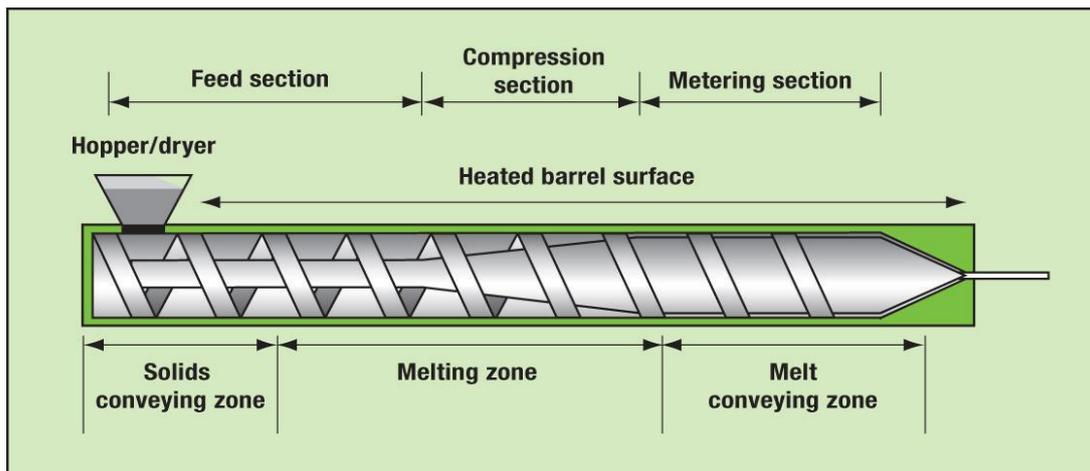
Conventional single screw extruders can be used for the extrusion processing of Arnitel® U & C.

### Extruder barrel

Conventional extruders for thermoplastics are also usually suitable for Arnitel® U & C. Barrels with axial grooves and intense cooling of the intake zone combined to a barrier screws require special attention. Please consult an Envalior specialist in such case.

### Screw design

A good melt quality can be obtained by a standard 3 zone screw with a length of minimum 24 L/D and a compression ratio of 2.8 - 3.0. However a well-designed barrier screw achieves the best results in terms of melt quality and absence of un-molten polymer. An optional additional mixing element at the end of the metering section enforces a homogenous melt temperature.



The use of a melt filter (preferably 200 mesh) is recommended for flame retardant grades. It will eliminate the risk for occasional agglomerated FR particles. In order to avoid degradation risk during processing residence time needs to be restricted to < 3 minutes at 240C. With increased temperature the residence time should be further reduced.

#### All the trademarks mentioned here are trademarks of Envalior.

Seller represents and warrants exclusively that on the date of delivery by Seller the product shall be in conformity with the specifications agreed upon. Seller makes no other representations or warranties, whether express or implied.

Seller is not responsible or liable for the design of the products of the Customer and it is the responsibility of the Customer to determine that the Seller's product is safe, complies with application laws and regulations, and is technically or otherwise fit for its intended use. Seller does not endorse or claim suitability of its products for a specific application and disclaims each and every representation or warranty, whether express or implied, in that respect.

Typical values are indicative only and are not to be construed as being binding specifications. Colorants in the product or other additives may cause significant variations in typical values.

Copyright © Envalior 2023. All rights reserved. No part of the information may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of Envalior.

# Arnitel® U & C Extrusion Grades

Print date: 2024-03-12

## TEMPERATURE SETTINGS

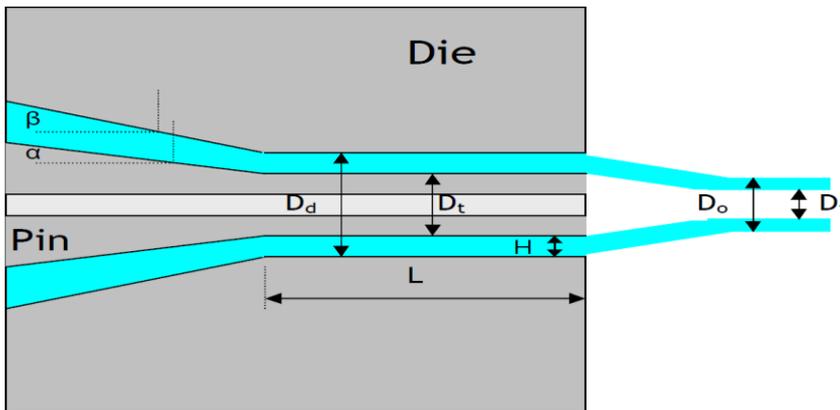
Following table shows the advised temperature settings for Arnitel® U & C grades:

MVR (2.16 kg, 230°C) [cc/600s]	TM [°C]	Zone 1 [°C]	Zone 2 [°C]	Zone 3 [°C]	Zone 4 [°C]	Head [°C]	Die [°C]	Tip [°C]
12-20	230-240	220	225	230	235	240	240	240

It is recommended to measure the melt temperature by collecting material directly from the die or via a bypass (startup valve). A thermocouple has to be inserted into the melt probe. For each specific application / die used the melt temperature may be optimized in order to get a good quality result. It is advised to stay within melt temperature range: 210°C – 250°C.

### Die design

Standard die's for W&C or T&H may be used. Pressure die's are known to work very easily but sometimes create higher stripping force as surface area to copper is higher. For Tube die's it is important to note that the ADR should be low. For Arnitel® U & C the optimal ADR is between 2,5 and 5. In order to draw the cross section of the tube correctly from the die, the Draw Ratio Balance (DRB) should be between 1,0 and 1,1.



Area Draw Down Ratio:

$$ADR = \frac{D_d^2 - D_t^2}{D_o^2 - D_i^2}$$

Draw Down Balance:

$$DRB = \frac{D_d / D_t}{D_o / D_i}$$

All the trademarks mentioned here are trademarks of Envalior.

Seller represents and warrants exclusively that on the date of delivery by Seller the product shall be in conformity with the specifications agreed upon. Seller makes no other representations or warranties, whether express or implied.

Seller is not responsible or liable for the design of the products of the Customer and it is the responsibility of the Customer to determine that the Seller's product is safe, complies with application laws and regulations, and is technically or otherwise fit for its intended use. Seller does not endorse or claim suitability of its products for a specific application and disclaims each and every representation or warranty, whether express or implied, in that respect.

Typical values are indicative only and are not to be construed as being binding specifications. Colorants in the product or other additives may cause significant variations in typical values.

Copyright © Envalior 2023. All rights reserved. No part of the information may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of Envalior.

# Arnitel® U & C Extrusion Grades

Print date: 2024-03-12

## **SAFETY**

For the safety properties of the material, we refer to our SDS which can be ordered at our sales offices. During practical operation, it is recommended to wear personal safety protections for hand/eye/body.

## **STARTUP/SHUT DOWN/CLEANING**

Production has to be started and stopped with a clean machine. Cleaning can be done with all Arnitel® Extrusion grades, applicable cleaning agents or HDPE.

## **PRODUCTION BREAKS**

During production breaks longer than a few minutes, we advise emptying the barrel. The temperature of the barrel should be reduced to a level far enough below the melting point of the compound in order to stop decomposition of the compound. Always wear personal safety protections for hand/eye/body.

## **TROUBLESHOOTING**

Contact Envalior in case more information is required from the aspect of material or processing.

### **All the trademarks mentioned here are trademarks of Envalior.**

Seller represents and warrants exclusively that on the date of delivery by Seller the product shall be in conformity with the specifications agreed upon. Seller makes no other representations or warranties, whether express or implied.

Seller is not responsible or liable for the design of the products of the Customer and it is the responsibility of the Customer to determine that the Seller's product is safe, complies with application laws and regulations, and is technically or otherwise fit for its intended use. Seller does not endorse or claim suitability of its products for a specific application and disclaims each and every representation or warranty, whether express or implied, in that respect.

Typical values are indicative only and are not to be construed as being binding specifications. Colorants in the product or other additives may cause significant variations in typical values.

Copyright © Envalior 2023. All rights reserved. No part of the information may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of Envalior.