

Ultramid® Polyamide 6

Product Description

Ultramid is a polyamide specialty extrusion resin combining high flexibility, outstanding chemical resistance and enhanced heat stability.

Applications

Ultramid is recommended for pipe and tubing applications requiring high melt strength and flexibility.

PHYSICAL	ISO Test Method	Property Value	
Density, g/cm	1183	1.13	
MECHANICAL	ISO Test Method	Dry	Conditioned
Tensile Modulus, MPa	527		
23C		1,180	-
Tensile stress at yield, MPa	527		
23C		48	-
Tensile strain at yield, %	527		
23C		30	-
Nominal strain at break, %	527		
23C		200	-
Flexural Modulus, MPa	178		
23C		1,050	-
IMPACT	ISO Test Method	Dry	Conditioned
Charpy Notched, kJ/m ²	179		
23C		12	-
THERMAL	ISO Test Method	Dry	Conditioned
Melting Point, C	3146	220	-
HDT A, C	75	48	-

Processing Guidelines

Material Handling

Max. Water content: 0.1%

Product is supplied in sealed containers and drying prior to molding is not required. If drying becomes necessary, a dehumidifying or desiccant dryer operating at 65 degC (149 degF) is recommended. Drying time is dependent on moisture level, but 2-4 hours is generally sufficient. Further information concerning safe handling procedures can be obtained from the Material Safety Data Sheet. Alternatively, please contact your BASF representative.

Typical Profile

Melt Temperature 225-245 degC (437-473 degF)

Typical Barrel Profile (degC):

Rear 225-245 degC (437-473 degF)

Middle 225-250 degC (437-482 degF)

Front 225-245 degC (437-473 degF)

Head 230-245 degC (446-473 degF)

Flange 230-245 degC (446-473 degF)

Die 230-245 degC (446-473 degF)

Screw Parameters

Metering Section	40%
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Transition Section	3 to 4 flights
Feed Section	balance of screw length
Compression Ratio	3.5:1 to 4.0:1
L/D Ratio	20:1 to 24:1

Tooling & Sizing

Die to Finished Tube dia. 1.5-2.0:1

Selection of pin and die size will be dependent on the material viscosity. In general, the ratio of die size to finished tube diameter is about 1.5-2.0:1. The mandrel (pin) size is determined the same way in relation to the inner tube diameter.

Free (open tank) extrusion is recommended when producing tube diameters 9.5mm and below. For larger diameters, a differential pressure vacuum tank is recommended.

Tooling draw ratio is generally higher with free extrusion versus sizing, but will depend on melt viscosity. The vacuum sizer entrance should be about 3-9% larger than the finished tube outer diameter. Selection will depend on melt viscosity and die swell of the extrudate.

Quenching

For diameters less than or equal to 9.5mm (.37") O.D., open tank quenching with normal tap water is suggested. Depending upon line speed, quenching distance can vary from 7.5 to 12 meters (24.6 -39.4 feet). A short air gap (die to quench water) is recommended for both tubing and cable jacketing for best flexibility.

Note

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