

## TPU “ULTRA HARD” TECHNICAL DATA SHEET

### Product Feature:

**ULTRA HARD** is polyester based thermoplastic polyurethane elastomer. It has good transparency, good mechanical properties, good heat resistance, humidity resistance, and excellent flexibility under very low temperature. It is both an injection and extrusion molding grade for high-end products.

### Applications:

Medical parts, auto parts, shoes, etc.

### Product Properties:

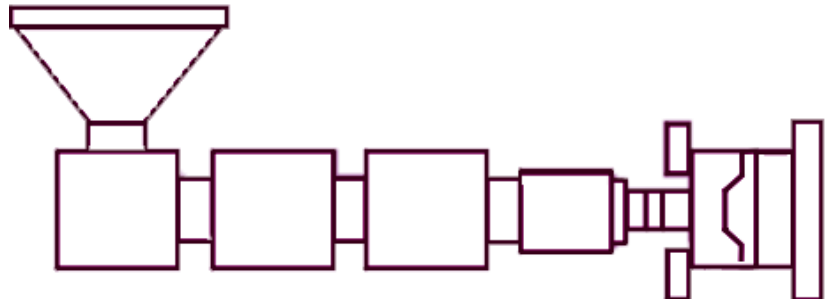
Typical Properties	Test Method	Units	Typical values*
Form	N/A	-	Pellet
Color	N/A	-	Transparent
Hardness	ASTM D-2240	shore D	65
Gravity	ASTM D-792	g/cm <sup>3</sup>	1.19
100% Modulus of elasticity	ASTM D412	MPa	17
Tensile Stress	ASTM D-412	MPa	43
Tear Strength	ASTM D-624	N/mm	205
Ultimate Elongation	ASTM D-412	%	380
DIN Abrasion	ISO 4649	mm <sup>3</sup>	30
Yellow Index	ASTM E313	--	3

\* All these physical properties are based on injection molded samples, which are conditioned at 23 °C/50% for 24h. Above values are typical values and should not be used as specifications.

## Processing Guidelines:

### Injection Moulding Guidelines

Mold Shrinkage:	0.015 ~ 0.025 inch/inch
Injection Speed:	Medium - Fast
Injection Pressure:	Medium - Fast
Back Pressure:	Low - Medium
Holding Pressure:	Sufficient to pack the mould
Cooling:	Can be demoulded when parts have sufficiently cooled

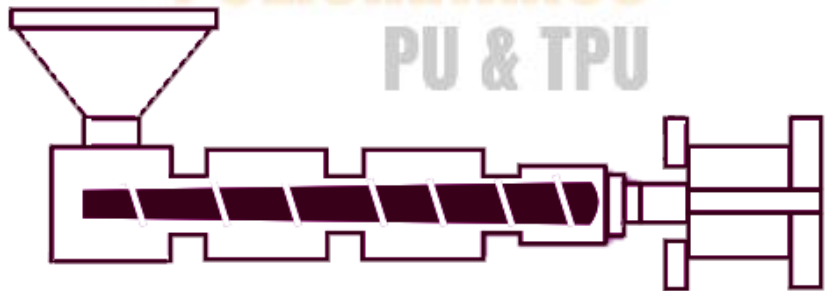


Barrel Temperature (°C)

150-170      170-190      180-200      200-215      25-45

### Extrusion Guidelines

L/D Ratio:	20:1 - 25:1
Compression Ratio:	2.5 - 3.0
Breaker Plate/Screen:	Both should be used
Draw Down:	5 - 10%
Cooling:	Cold water bath



Barrel Temperature (°C)

150-170      200-210      210-230      200-235      180-200

**Processing Notes:**

- A、 Drying before processing, it is recommended to dry for 3-5 hours at 80 degrees centigrade. If it is damp, the drying time will be lengthened.
- B、 Cleaning the screw and die with PP or PE before and after processing.
- C、 The gate and runner can be recycled, but less than 15%.
- D、 PE/EVA base color masterbatch is better for coloring.



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