

Zytel® ST811HS NC010

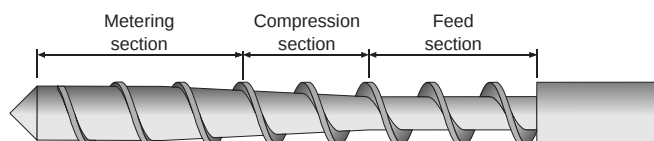
NYLON RESIN

Zytel® ST811HS is a flexible, heat stabilized Super Tough polyamide 6 resin developed for extrusion and injection molding applications such as cable and rope jacketing, hose inner cores and fasteners and ski binding parts.

General Information

Resin Identification ISO 1043	PA6-HI
Density ISO 1183	1040/- kg/m ³
Melting temperature, 10°C/min ISO 11357-1/-3	218/* °C

Recommended screw design



Drying

Drying Temperature	60 °C
Drying Time, Dehumidified Dryer	4 - 6 h
Processing Moisture Content	≤0.06 %

- Standard 3-zone screws are recommended, with a compression ratio of 3:1 and L/D = 25 (L = Length of the screw, D = Outer diameter of the screw).
- A barrier screw is advised for better homogeneity.

Recommended Temperature profile settings

Melt temperature (Range)	235 - 250 °C
Rear temperature (Range)	210 - 230 °C
Center Rear temperature (Range)	225 - 230 °C
Center Front temperature (Range)	230 - 240 °C
Front temperature (Range)	235 - 250 °C
Head and Die temperature (Range)	235 - 250 °C

Recommended general settings for tubing

DDR: Draw-Down Ratio

Ratio of the cross section of the extrudate at the extrusion die-face to the cross section of the finished tube.

$$DDR = \frac{(D_d^2 - D_t^2)}{(d_o^2 - d_i^2)}$$

DDR (recommended range)

1.5 - 3.5

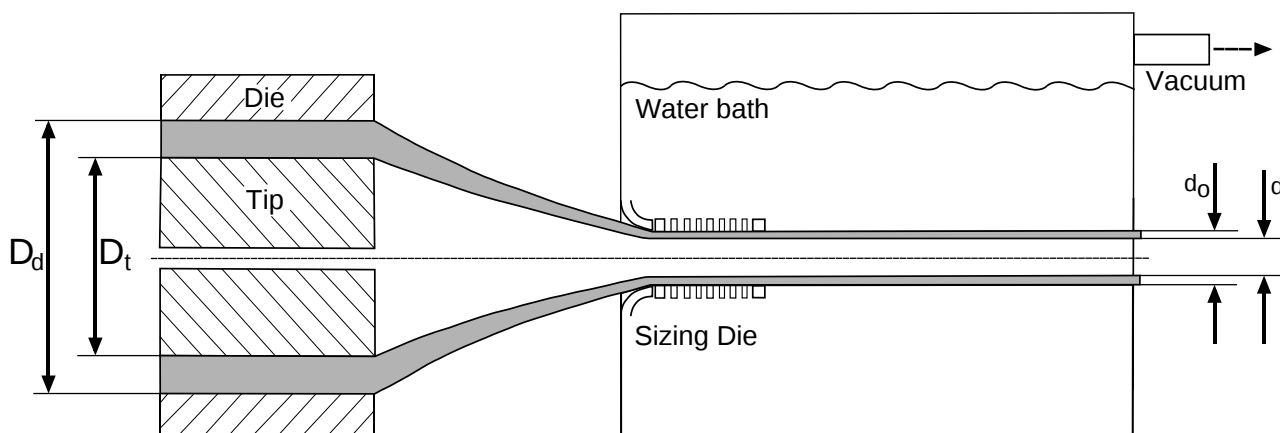
DRB: Draw-Ratio-Balance

Ratio of draw down between inside and outside.

$$DRB = \frac{(D_d / d_o)}{(D_t / d_i)}$$

DRB (recommended range)

0.95 - 1.05



D_d = Internal diameter of extrusion die; D_t = External diameter of pin (mandrel); d_o = External diameter of tube; d_i = Internal tube diameter

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Check-list before processing

- Use Zytel® resin from sealed, undamaged containers.
- Dry Zytel® before the extrusion and check the moisture content.
- A clean extruder is preferred. Polyethylene, generally HDPE, is recommended to purge the barrel and the screw at the end of production. If concentrates or pigments are added, they should be dried.
- The Draw-Down Ratio (DDR) should be adapted to the process.
- When needed, a stainless steel screen pack unit of 80-mesh could be used.
- Follow the recommended temperature profiles. It is recommended to measure the temperature of the melt at the die and adjust the temperature profile of the extruder to reach the melt temperature recommendation. If the melt viscosity is too low, it is possible to reduce the temperature of the head.

Special precautions

Thermal degradation can occur with excessive time and temperature and cause the evolution of harmful vapors. However, under normal operating conditions, the risk of decomposition of these resins is minimal. Local Exhaust Ventilation should be used to capture and remove fumes at places where volatiles may be generated.

Please refer to the MSDS of the material and wear appropriate personal protection as needed.

Links for further information

For further processing guidelines, please refer to the following information:

[Exhaust Ventilation](#)

[Technical Datasheet](#)