

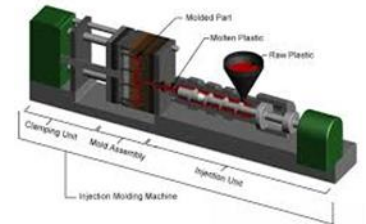
LOTTE

ADVANCED MATERIALS

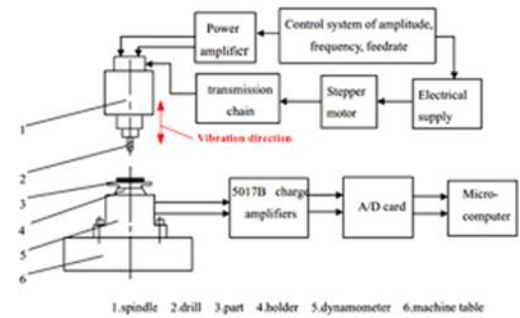
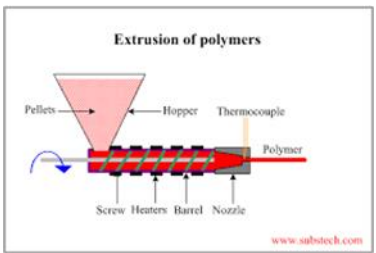
Processing PC & ABS

Processing Polycarbonate

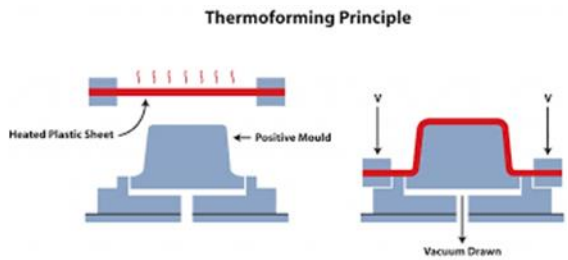
- Machining
- Extrusion
 - Film
 - Tubing
 - Stock shapes
- Thermoforming
- Injection molding
- Blow molding



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1.spindle 2.drill 3.part 4.bolder 5.dynamometer 6.machine table

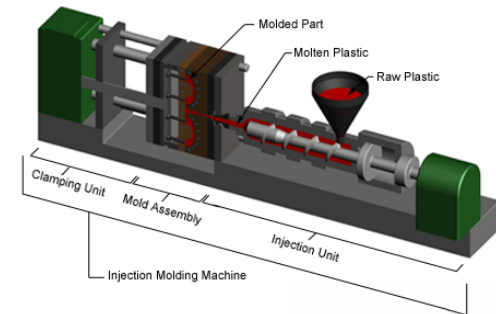


Drying Polycarbonate

- Polycarbonate is hygroscopic and needs to be dried before processing
- Drying temperature of 120° C
- Achieve moisture level of less than 0.02%
- Drying time of 4 hours is usually sufficient
- Air dew point should be -20° F or lower
- Extended drying times may cause yellowing of the polymer

Injection Molding Polycarbonate

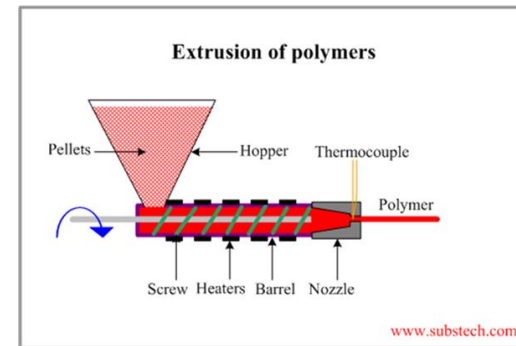
- Can be processed on most modern injection molding machines
- Can be processed on machines with or without shut-off nozzles
- Press barrel should have a sliding check-ring style non-return valve
- Shrinkage is typically 0.5 to 0.8% uni-directionally
- Draft angles on molds for part de-molding
 - 1°
- Processing temps:
 - 280°C to 320°C
- Mold temperatures
 - 80° to 120°C
- Injection pressure...as high as possible
- Injection speed
 - Slow injection speeds when small or edge gates are used; high speeds for other types of gates
- High processing temperatures and/or excessively long residence time can damage the polymer and lead to a reduction in part performance and/or discoloration
- Adequate exhaust ventilation is recommended



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Extruding Polycarbonate

- Can be processed on most extrusion machines
- Use a three zone screw with a 25-30 L/D or a barrier screw
- Compression ratio
 - 2,25:1
- Processing temperatures
 - 270° to 320° C
- High processing temperatures and/or excessively long residence time can damage the polymer and lead to a reduction in part performance and/or discoloration
- Adequate exhaust ventilation is recommended

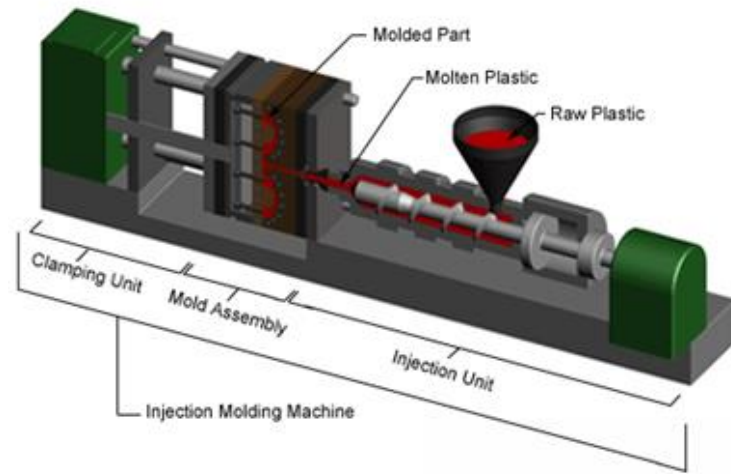


Drying ABS

- ABS is hygroscopic and needs to be dried before processing
- Drying temperature of 80° C to 90° C
- Achieve moisture level of less than 0.02%
- Drying time of 4 hours is usually sufficient
- Extended drying times may cause yellowing of the polymer in clear ABS

Injection molding ABS

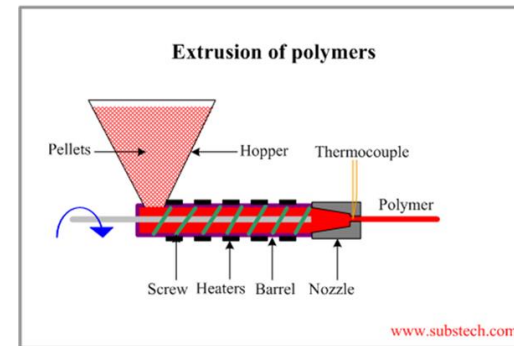
- Shrinkage is typically 0.4 to 0.6%
- Draft angles on molds for part de-molding
 - 1°
- Processing temps:
 - 200°C to 280°C
- Mold temperatures
 - 50° to 60°C
- Injection pressure
 - 70 -140 MPa
- Injection speed
 - Moderate to high
- Screw rpm
 - 50 – 100 rpm
- Back pressure
 - 5 – 15 Mpa
- Adequate venting



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Extruding ABS

- Can be processed on most extrusion machines
- Use a three zone screw with a 25-30 L/D or a barrier screw
- Compression ratio
 - 2,75:1
- Processing temperatures
 - 190° to 240° C
- Melt temperature
 - 200° – 245° C
- High processing temperatures and/or excessively long residence time can damage the polymer and lead to a reduction in part performance and/or discoloration
- Adequate exhaust ventilation is recommended



Thank You !