Casting Processes

PL ET 370

Modified MAR-02

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Casting Processes

- Liquid Resins
- Hot Melt
- Solvent Based
  - Plastisols
  - Dissolved Plastic
- Powder

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Casting Processes

- Acrylic
- Polyester (TS)
- Phenolic
- Epoxy
- Polyurethanes
- Silicones
- Vinyls

- Hot Melt
  - Any TP
  - Polyethylene
  - Polyamides
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- Mold Materials
  - Wood
  - Plaster
  - Plastic
  - Aluminum
  - Glass
  - Rubber/Elastomer

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- Processes
  - Mold Casting
  - Potting/Embedding
  - Cell Casting
  - Continuous Casting

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- Mold Casting
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Mold Casting

- Process
  - Mold Cast around Prototype or Object
  - Mold Machined
- Pour Resin
- Control Temperature
- Cool
- Eject from Mold

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Mold Casting

- Advantages
  - Large Parts
  - Low Cost Molds

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Mold Casting

- Disadvantages
  - Cannot use Solvent Based Materials
  - High Shrinkage
    - Thermal
    - Cross-linking Density Change
  - Long Cycle Time
  - Vacuum May be Needed
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Embedding

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Embedding

- Like Mold Casting
- Part Enclosed by Resin
- Some Features may Stick Out
- Mold may be any Shape

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Encapsulation

- Like Embedding
  - Mold must Conform to Part Shape
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Continuous Casting

Modification of Cell Casting
- Stainless Steel Belts instead of Glass

Continuous Casting
- Higher Production than Cell Casting
- Produced Horizontally
  - Gravity
  - Cross-linking