

## IME 100 -.CASTING PROCESSES II

### BASIC CLASS NOTES

OCTOBER 19, 2015

#### Class Preparation and Reading Review

This should be completed prior to class

Key Concepts to Be Discussed in Class:

Questions About Subject Matter for Class Session:

#### Outline

- Lost Foam Casting
- Investment Casting
- Permanent Mold Casting
- Die Casting

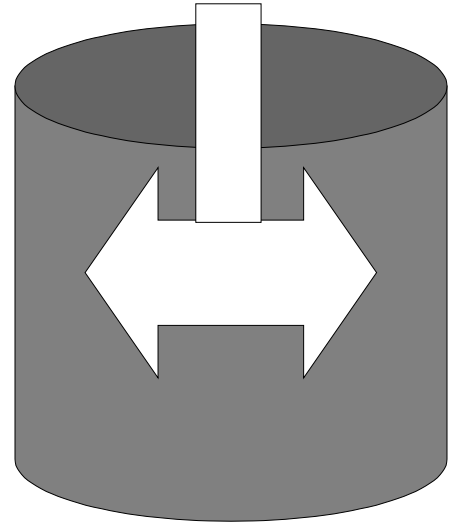
## IME 100 -.CASTING PROCESSES II

### BASIC CLASS NOTES

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#### Lost Foam Casting

- Full Mold or Evaporative Casting
  - Make Pattern out of Polystyrene
  - Place In Sand
  - Add Sprue
- Add Hot Metal
  - Mold Pattern Evaporates



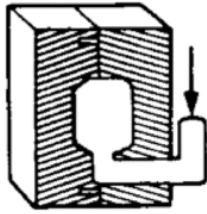
#### Lost Foam vs Green Sand Casting

##### Similarities

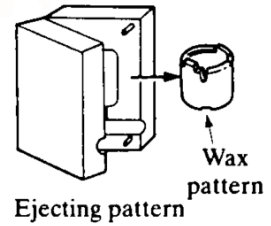
##### Differences

Investment Casting

- Lost Wax Casting
  - Use Wax to Make Pattern
  - Form Ceramic Mold
  - Pour In Metal

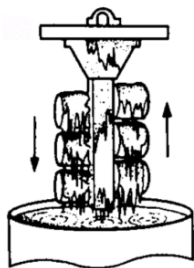


Injection wax  
or plastic pattern

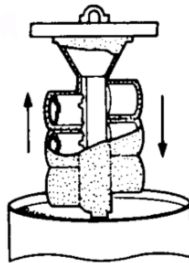


Investment Casting

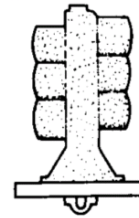
- Making of Mold
  - Get a Pre- Ceramic Coating



Slurry coating



Stucco coating



Completed mold

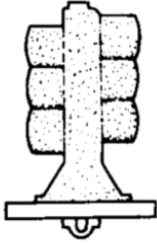
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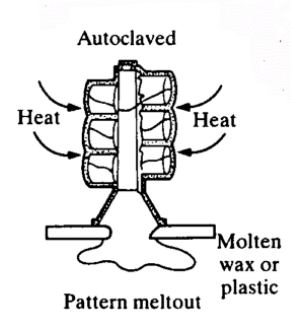
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### Investment Casting

- Final Formation of Mold
  - Heat and Cure Ceramic
  - Melt Wax
- Mold Cavity Remains

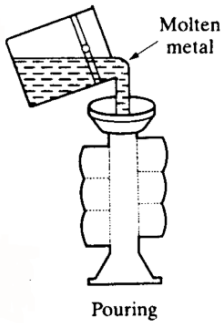


Completed mold



### Investment Casting

- Pour Metal Into Mold
  - Final Step of Process



Casting



Pattern

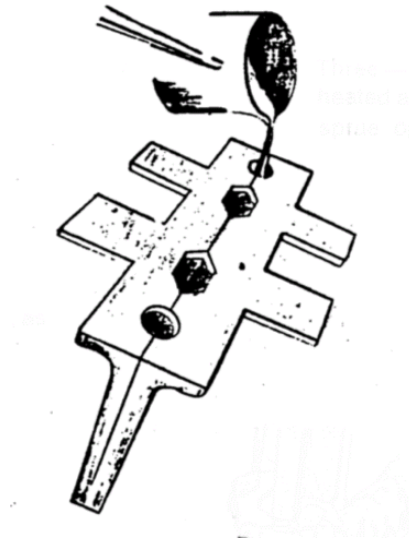
### Investment vs Green Sand Casting

#### Similarities

#### Differences

Permanent Mold Casting

- Make a Mold From High  $T_M$  Metal
  - Include Gate Runner System



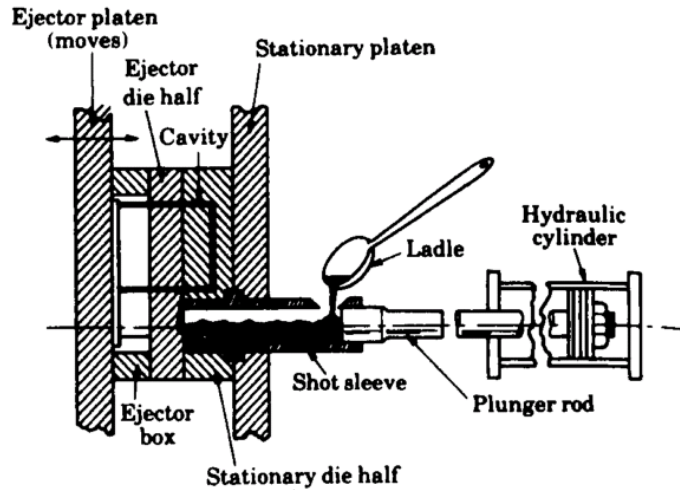
Permanent Mold vs Green Sand Casting

Similarities

Differences

Die Casting

- Permanent Mold Casting Under Pressure
  - Cold Chamber Illustrated



Die vs Green Sand Casting

Similarities

Differences

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### Summary

- Casting is Conceptually One of the Easiest Processes to Visualize and Implement
- Casting Processes Comparison
  - Similarities
  - Differences
- Acknowledgment
  - W.R. Riffe (For Use of Casting Images)

### After Class Review

Summarize Key Concepts and List Further Questions

<u>Key Concepts</u>	<u>Questions</u>