Slide 1

Reaction Injection Molding (RIM)

PL ET 370

Modified MAR-02

Slide 2

RIM

- Applications
  - Automotive
  - Bumper Fascia
  - Door Panels
  - Sun Roof Frames
  - Wheel Chocks
  - Backhoe Cab Doors
  - Kayaks
  - Water Skis

Slide 3

RIM

- Process
  - 2 Reactants
  - Mixing
  - Curing
Slide 4

**RIM**

- Advantages
  - Low Tooling Cost
  - Lower Clamp Tonnage
  - Thinner Walls
  - Parts can be Strong-Flexible-Lightweight
  - Prototyping

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Slide 5

**RIM**

- Disadvantages
  - Limited/Expensive Materials
  - Gas Bubbles on Part Surface
  - Slow Cycle Time
  - Reactive is Hazardous
  - Flash
  - Mold Release Needed to make sure Part will not Stick to the Mold

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Slide 6

**RIM**

- Common Problems Associated with Processing
  - Surface Finish - Gas Bubbles
  - Flash
**Slide 7**

**RIM**
- **Materials**
  - Polyurethane (~90%)
  - Polyamide
  - Epoxy
  - Phenolics

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**Slide 8**

**RIM**
- **Wall Thickness**
  - Typical \(-0.125 - 1.5\) in
  - As Low as \(0.030\) in

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**Slide 9**

**RIM**
- **Draft**
  - Minimum \(1/2\)° for up to 1 inch
  - \(1/4\)° for each inch after that
Slide 10

RIM

- Bosses
  - There should be no Free Standing Bosses
  - Put Gussets on any Free Standing Boss

Slide 11

RIM

- Mold Materials
  - Steel
  - Aluminum
  - Kirksite
  - Epoxy

Slide 12

RIM

- Gating Considerations (1)
  - Lowest Part of the Mold
  - Minimize Flow Length
  - Non-Aesthetic Location
  - Flow is Parallel to Ribs
RIM

- Gate
- Edge
- Refers to: (Polyurethane)
  - Runner
  - Aftermixer
  - Gate