

PLASTIC PROCESSING - II

1. EXTRUSION - I

1. Introduction & definition of terms
2. Fundamentals of Extrusion
3. Classification of Extruders
4. Screw
 - (i) Screw Nomenclature
 - (ii) L/D Ratio
 - (iii) Compression Ratio
 - (iv) Types of screw.
5. Single screw extruder parts & their function
6. Breaker plate & Screen pack
7. Manufacturing processes of
 - (i) Blown Film Extrusion
 - (ii) Flat Film Extrusion
 - (iii) Sheet
 - (iv) Pipe & Tube Extrusion
 - (v) Wire & Cable Extrusion
 - (vi) Profile Extrusion
 - (vii) Monofilament Extrusion process.
8. Merits & demerits of Extrusion process.
9. Extrusion defects, their causes & remedies.

2. EXTRUSION - II

1. Twin screw Extruder
 - (i) Working principle & process
 - (ii) Types of Twin screw extruders.
 - (iii) Merits & Demerits.
2. Vented Barrel Extruder
3. Hopper Loading Devices.

4. Mould Temperature Control
5. Drying equipments.

6. Dies for

- (i) Blown Film
- (ii) Tubes & Pipes
- (iii) Monofilaments
- (iv) Flat Film

3. BLOW MOULDING

1. Introduction & definition of terms.
2. Plastic materials for blow moulding & its properties.

3. Blow Moulding Methods.

- (i) Extrusion Blow Moulding
- (ii) Injection Blow Moulding
- (iii) Stretch Blow Moulding.

 (a) Injection Stretch Blow Moulding

 (b) Extrusion Stretch Blow Moulding.

4. Parison Programming

5. Parison Swell

6. Blowing Air

7. Pinch-off Design.

8. Blow Ratio

9. Blow Moulding & Finishing operation

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10. Merits & demerits of Blow Moulding

11. Comparison of Rotational moulding with Blow moulding.

12. Blow moulding defects, their causes & remedies.

4. CALENDERING


1. Introduction & definition of terms.
2. Plastic materials for Calendering process.
3. Calendering process with plant details.
4. Types of Calender Rolls
5. Heating of Calender Rolls.
6. Roll Bending (Configuration)
7. Advantages & applications of Calendering process.
8. Troubleshooting of Calendering process.


5. THERMOFORMING

1. Introduction & Principle of Thermoforming
2. Materials for thermoforming.
3. Heating system for thermoforming.
4. Thermoforming Process Techniques.
 - (i) Vacuum Forming
 - (ii) Pressure Forming.
 - (iii) Plug - Assist Forming
 - (iv) Drape Forming
 - (v) Snap-back Forming
 - (vi) Matched Die Forming
5. Application of Thermoforming
6. Comparison of Thermoforming with Injection Moulding.
7. Troubleshooting of Thermoforming process.

LIST OF EXPERIMENT

1. To set film die, run the extruder & find output rate.
2. To run the extruder, to produce pipe & to determine production rate.
3. To run the Blow moulding machine & to find out the cycle time.
4. Demonstration of Calendaring process.
5. To operate Vacuum forming machine.
6. Demonstration of Pressure Forming Machine.
7. Identify defects, their causes & suggest remedies in ~~film~~ Blown film. Shilpa
8. Identify defects, their causes & suggest remedies in thermoformed article.


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