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Introductory Blow Moulding

Aim of the Programme

This programme is aimed at employees who undertake an operator/trainee setter role with the addition of some monitoring and basic fault correction. It will give the attendee a solid understanding of the fundamentals associated with the extrusion process and will allow them to build upon this solid grounding in the future

Objectives of the Programme

- Work in a safe manner in relation to the machine
- Understand the design differences of different manufactures of machines
- Explain the interaction of ancillary equipment and its relationship to the process
- Explain basic quality procedures and work to quality specifications
- Understand the make up and differences in Polymer compounds
- Explain the common components within a typical die
- Understand preparation and operation of a calibrator
- Explain the haul off and its use
- Understand the different types of cutting devices used in extrusion
- Set up an Extrusion line to a given standard
- Start up and shut down an Extrusion line whilst applying best practice within the industry

Attendees

This programme is ideal for:

- Anyone who wishes to get a good understanding of the process
- Setter/Operators
- Trainee Setters

Programme Timetable

Guide Course Schedule (May change dependent upon customers needs)

Day 1

Introduction
Machine designs & configurations
Process sequence: What happens & when
MFI and discussing how the viscosity of the material is affected by regrind
Typical material problems such as moisture, contamination and melt fracture
Extruders: Heating and temperature control: Heater bands, thermocouples and cooling fans. Effect of frictional heat. Associated start up issues
Safety in blow moulding
Control systems

Day 2

What's inside the Head?
Polymer Compounds
Shot weight, shot volume, parison length, Die gap/screw speed and push out
Head Tooling: Die/Pin/Core. Die & pin designs. Ovalised tooling, converge/diverge.
Parison Programming: Function of components, set up, minimum gap Setting. Relationship between positional points, profile range and basic weight
Radial wall thickness control, applications and limitations
Parison Faults: Drag lines, poor distribution and sagging
Blowing ratio and die swell
Blowing: Pressures for pre blow and main blow
Production faults: Holes, contamination, shrinkage, distortion, poor distribution, weak weld and surface finish
Computer based fault simulation
Setting cycle times, temperatures, pressures
Practical

Day 3

Parison programming: Function of components, set up, minimum gap
Setting. Relationship between positional points, profile range and
basic weight

Radial wall thickness control, applications and limitations

Parison Faults: Drag lines, poor distribution and sagging

Blowing ratio and die well

Blowing: Pressures for pre blow and main blow

Production faults: Holes, contamination, shrinkage, distortion, poor
distribution, weak weld and surface finish

Setting cycle times, temperatures, pressures

Practical

Day 4

Trouble shooting

Short / long term variables: Temperature, speeds, pressures and
timers

Typical faults placed on the machine and logical rectification

Practical work

Course assessment

At the beginning and end of each day a review of subject matter and a
questions and answers session will take place to ensure that all subject
matter has been fully embedded.