Blow Mold Operator Training Course Outline

1. Basic Polymer & PET Chemistry and Physics (45 minutes)
This portion will cover PET properties that will help give the operator/technician a better understanding of blow molding. This module builds the foundation of material properties that relate to processing.

2. Injection (45 minutes)
In a two-stage blow molding process, injection molded preforms are loaded into a blow molding machine and blown into bottles. This section will cover injection molding fundamentals, resin delivery, resin drying, and the basic outline of the injection process. The main goal of this section will be to provide an understanding of the injection variables and to gain an understanding of how they can affect preform quality which, in turn, can affect the bottle quality.

3. Blow Molding Classroom (6 to 8 hours)
This section will cover blow molding fundamentals, controls, preform heating, and processing. The main goal of this section will be to provide an understanding of the blow molding variables and their relationships to gain an understanding of the machine operation and quality problems, as well as how to resolve them by making changes to the blow molding machine.

The following items will be covered in this section:

- How are preforms heated and what type of changes can be made
- Heating steps and how changes can be made to create a more stable process
- Reviewing different heat profiles as a way to understand how some processes are more stable than others
- Different blowing controls within the blow wheel, how they are setup, and the affect if they are changed
- Review of the various steps of the blow molding process, as well as what occurs in each of these steps
- Pre-blow audit reviews and how the bottle changes based on the size and shape
- A detailed understanding of what happens during the blowing step
- Cause and effect of different bottles defects

4. Blow Molding Practical (5 to 6 hours)
Time will be spent at a blow molding machine to reinforce the formal training with practical experience. This section will cover blow molding fundamentals, machine operation, controls, and processing. The main goal of this section will be to provide information to identify and correct quality problems to gain an understanding of the different components of the blow molding machine and how they can affect the quality of the bottles produced.

- The machine practical will begin with a general walk around the blow molding machine where the different sections of the machines will be covered.
- The PTI trainer will work with the participants to review the necessary machine adjustments and settings that affect the bottle process.
- The changes will be documented, discussed, and the results reviewed after any changes are made.
- This will create a solid understanding of the cause and effect of the different variables adjusted.
- Mechanical, air, mold temperatures, and preform heat adjustments will be made during this practical.
- Bottles will also be tested for material distribution and performance to gain a better understanding of the effects on the quality of the bottles made at different process conditions.
- PTI will allow participants to determine the changes and be prepared to help as needed. The goal is to allow the student to make the changes and determine the next steps based on training from the first day.

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