TE_3. Unit 2.4. Processes. Blow molding. Extrusion. Surname Name Group

Task 1. Read the text and answer the questions.

In the world of manufacturing, blow molding efficiently shapes hollow objects. This technique uses a plastic tube called a paracin as the foundation. The parison is heated until malleable. Once heated, the parison is placed in a split mold designed to specifications. Compressed air inflates the tube, shaping it to the mold**'s** contours. This step is crucial for precision. As the parison expands and takes on the mold**'s** imprint, it cools and hardens. The mold is then separated, revealing a flawless hollow object.

This method is common in producing items like bottles and containers. Blow molding showcases thermal dynamics and air pressure to create functional products. Its efficiency in making complex shapes makes it essential in mass production. Innovation continues to improve this process.

1. **_____ What is the purpose of the parison in the blow molding process?**
   a. To cool the plastic
   b. To shape the final product
   c. To add color to the plastic
2. **_____What happens when compressed air is used in blow molding?**
   a. It inflates the parison into the mold's shape
   b. It cools the mold
   c. It cuts the molded object
3. **_____What happens after the parison cools in the blow molding process?**
   a. It is inflated again
   b. The mold is separated, revealing the final product
   c. It is placed in another mold for finishing
4. **_____Which of the following items is commonly made using blow molding?**
   a. Wooden furniture
   b. Metal tools
   c. Plastic bottles
5. **_____ Why is blow molding essential in manufacturing?**
   a. It is used only for small-scale production
   b. It shapes solid objects with precision
   c. It efficiently creates complex hollow shapes

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Task 2. Match the terms with their definitions.

1. Parison	**a)** The final form of the product in blow molding, which is a three-dimensional object with an empty space inside
2. Hollow shape	**b)** Air that is pressurized and used in blow molding to inflate the parison and force it to conform to the mold's shape.
3. Inflate:	**c)** A heated plastic tube or preform that is used as the starting material in the blow molding process. It is shaped and inflated to form the final hollow product.
4. Compressed air	**d)** The action of the parison stretching and increasing in size when compressed air is applied, allowing it to fill the mold and take on the shape of the final product.
5. Expand:	**e)** The process of expanding the parison using air pressure during blow molding, which causes it to fill the mold and take on its desired shape.

Task 3. Fill in the gaps with the most appropriate word.

hardens; hollow shape; compressed air;

wall thicknesses; expand; malleable

1. In blow molding, the parison is heated to a _____ state before being placed into a mold.
2. Compressed air is used to inflate the parison, forcing it to _____and take the shape of the mold.
3. After the parison is inflated, it cools and _____ to form a hollow shape.
4. _____ plays a crucial role in ensuring that the parison inflates properly within the mold.
5. The _____produced in blow molding is ideal for creating lightweight and functional containers.
6. In some cases, blow molding can be used to create products with varying _____for added strength.

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Task 3. Complete these sentences, using the active or passive forms of the verbs in brackets.

1. Reheating _____(occur) in the reheating furnace, where the billet is heated to the rolling temperature.
2. Rolling _____ (execute) to shape the material in the rolling mill stands.
3. Rolling _____(carry out) to reduce the thickness of the material in the stands.
4. Rolling mills _____(shape) the material to achieve the desired dimensions.
5. The billet _____(heat) in the reheating furnace for the rolling process.
6. Reheating _____(perform) to raise the temperature of the billet in the furnace.
7. Cooling _____(facilitate) the solidification of the rolled product, ensuring structural integrity.
8. Cooling _____(follow) finish rolling, adjusting start temperature, cooling rate, and final temperature.
9. Cooling _____(employ) to facilitate the solidification of the rolled product.

Task 4. Put the stages in the correct order to tell about the process of extrusion. Fill in the gaps with the most appropriate word from the box.

causes / feeding / undergo / emerges / molten / heated / forced / cut / conveyed /

_____ As the extruded plastic 1) _____ from the die, it begins to cool and solidify. Cooling may be achieved through ambient air or by passing the extruded product through a water bath or cooling chamber.

_____ Inside the extruder, the plastic material is 2) _____ forward by a rotating screw while being 3)_____ to a molten state. The combination of heat and mechanical energy from the screw 4)_____ the plastic to melt and become homogeneous.

_____ After solidification, the extruded plastic is 5)_____ to the desired length or size using cutting blades or saws. The cut pieces may 6)_____ further processing or packaging before being sent for use or distribution.

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_____ The process begins with 7)_____ raw plastic material, typically in the form of pellets, granules, or powder, into the hopper of the extruder.

_____ Once the plastic material is fully 8)_____ and homogenized, it is

9)_____ through a specially shaped die at the end of the extruder. The die imparts the desired shape and dimensions to the extruded plastic, such as a tube, profile, or sheet.

Task 5. Match the terms with their definitions.

1. Extruder	a) A container or funnel-shaped reservoir used to hold and feed raw plastic material into the extruder.
2. Die	b) The state of a material, such as plastic, when it has been heated to a temperature at which it becomes fluid and can be shaped or molded.
3. Cooling Chamber	c) A machine used to melt and shape plastic material into a continuous profile or shape by forcing it through a die.
4. Hopper	d) Tools or equipment used to cut the extruded plastic product to the desired length or size after solidification.
5. Molten State	e) A controlled environment or enclosure where the extruded plastic product is cooled and solidified after emerging from the die.
6. Cutting Blades	f) A specially shaped tool or aperture through which molten plastic material is forced to give it the desired shape and dimensions.
7. Conveyed Forward	g) The process of mixing and blending the molten plastic material to ensure uniformity and consistency in composition and properties.
8. Solidification	h) The process of moving the plastic material through the extruder in the direction of extrusion, typically facilitated by a rotating screw or auger
9. Homogenized	i) The process by which the molten plastic material cools and hardens, transforming from a liquid state to a solid state.

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