

D. GAS

Gases: Matter that Takes the Shape of its Container

Have you ever wondered what air is made of? Well, one important part of the air we breathe is a substance called gas. Gases are special because they can fill up any closed container and take the shape of that container. Let's embark on an exciting journey to learn more about gases and their unique properties! Gases are one of the different forms of matter, just like solids and liquids. While solids are hard and firm, and liquids are runny and can pour, gases are quite different. Gases are invisible, which means we can't see them with our eyes. But even though we can't see them, they are still present all around us!

One amazing property of gases is that they can fill any closed container. Imagine blowing up a balloon. As you blow air into the balloon, it expands and fills the entire space inside. The air inside the balloon is a gas. It takes the shape of the balloon and fills it completely. This is because gases don't have a fixed shape like solids and liquids do. They can spread out to occupy all the available space.

Gases not only take the shape of their container, but they also assume the volume of their container. Volume refers to how much space an object takes up. Let's consider a glass jar with a lid. If you pour some gas into the jar and tightly close the lid, the gas will spread out and occupy the entire space inside the jar. It will take the volume of the jar. Even if you put more or less gas in the jar, the gas will always adjust and fill the jar completely.

Gases play a vital role in our everyday lives, even though we can't see them. When you cook food on a stove, the heat causes the water in the pot to turn into steam, which is a gas. The steam rises into the air, carrying the delicious smell of your meal. When you blow up a balloon for a birthday party, you're filling it with gas. The gas expands and fills the balloon, making it ready for a celebration!

Another example of gas is the air we breathe. The air around us is a mixture of different gases, including oxygen. We need oxygen from the air to stay alive and keep our bodies functioning properly. Plants also need gases like carbon dioxide to grow and produce oxygen for us. It's amazing how gases are essential for life!

Gases can be found in nature too. When a volcano erupts, it releases gases like steam, carbon dioxide, and sulfur dioxide. These gases come out of the volcano and rise into the air. Similarly, when a geyser erupts, it shoots out a mixture of water and gases, creating a beautiful display. Gases can also be found in some of the things we enjoy. When you open a can of soda or a bottle of lemonade, you might hear a sound. That sound is caused by the release of carbon dioxide gas, which was trapped inside the liquid. The bubbles in soda and fizzy drinks are actually tiny gas bubbles.

Now, let's test your understanding with some multiple-choice questions:

1. What is a gas?
 - a) A solid substance
 - b) A liquid substance
 - c) A state of matter that fills any closed container

2. What makes gases different from solids and liquids?
 - a) Gases are invisible.
 - b) Gases have a fixed shape.
 - c) Gases can't fill containers.

3. What happens when you blow air into a balloon?
 - a) The balloon gets smaller.
 - b) The balloon pops.
 - c) The balloon expands and fills up with gas.

4. What property allows gases to fill any closed container?
 - a) Shape-shifting ability
 - b) Liquid-like behavior
 - c) Ability to assume the volume of their container

5. What is an example of a gas we encounter every day?
 - a) Water vapor
 - b) Ice
 - c) Rocks

6. What happens to the gas when you close a jar tightly?
 - a) It disappears.
 - b) It condenses into a liquid.
 - c) It spreads out and fills the entire jar.

7. What property of gases allows them to adjust their volume?
 - a) Flexibility
 - b) Expandability
 - c) Temperature sensitivity

8. Can gases be seen with our eyes?
 - a) Yes, they have a color.
 - b) No, they are invisible.
 - c) Only if they are contained in a visible container.

D. Answers

1. c) A state of matter that fills any closed container

Explanation: A gas is a state of matter that can fill any closed container.

2. a) Gases are invisible.

Explanation: Unlike solids and liquids, gases cannot be seen with our eyes.

3. c) The balloon expands and fills up with gas.

Explanation: When you blow air into a balloon, the gas fills up the balloon and makes it expand.

4. c) Ability to assume the volume of their container

Explanation: Gases can adjust and fill any closed container, taking the shape and volume of that container.

5. a) Water vapor

Explanation: Water vapor, which is present in our breath and steam from boiling water, is an example of a gas we encounter daily.

6. c) It spreads out and fills the entire jar.

Explanation: When a jar is tightly closed, the gas spreads out and occupies the entire space inside the jar.

7. b) Expandability

Explanation: Gases can expand or contract to assume the volume of their container.

8. b) No, they are invisible.

Explanation: Gases cannot be seen with our eyes as they are invisible.