

Features Of Mixture

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|---|----------------------|---------------|----------------|-----------------|---|--------------------|-------------------|----------------------|----------------------|
| <p>1 Which statement describes the components of a mixture?</p> <p>(1) Each component gains new properties.
 (2) Each component loses its original properties.
 (3) The proportions of components can vary.
 (4) The proportions of components cannot vary.</p> <p>2 Distillation of crude oil from various parts of the world yields different percentages of hydrocarbons. Which statement explains these different percentages?</p> <p>(1) Each component in a mixture has a different solubility in water.
 (2) Hydrocarbons are organic compounds.
 (3) The carbons in hydrocarbons may be bonded in chains or rings.
 (4) The proportions of components in a mixture can vary.</p> <p>3 The ratio of chromium to iron to carbon varies among the different types of stainless steel. Therefore, stainless steel is classified as</p> <table border="0" style="width: 100%;"> <tr> <td>(1) a compound</td> <td>(3) a mixture</td> </tr> <tr> <td>(2) an element</td> <td>(4) a substance</td> </tr> </table> | (1) a compound | (3) a mixture | (2) an element | (4) a substance | <p>4 Powdered iron is magnetic, but powdered sulfur is not. What occurs when they form a mixture in a beaker at room temperature?</p> <p>(1) The iron retains its magnetic properties.
 (2) The iron loses its metallic properties.
 (3) The sulfur gains magnetic properties.
 (4) The sulfur gains metallic properties.</p> <p>5 Salt water is classified as a</p> <p>(1) compound because the proportion of its atoms is fixed
 (2) compound because the proportion of its atoms can vary
 (3) mixture because the proportion of its components is fixed
 (4) mixture because the proportion of its components can vary</p> <p>6 Powdered sulfur is yellow, and powdered iron is gray. When powdered sulfur and powdered iron are mixed at 20°C, the powdered iron</p> <table border="0" style="width: 100%;"> <tr> <td>(1) becomes yellow</td> <td>(3) remains ionic</td> </tr> <tr> <td>(2) becomes a liquid</td> <td>(4) remains magnetic</td> </tr> </table> | (1) becomes yellow | (3) remains ionic | (2) becomes a liquid | (4) remains magnetic |
| (1) a compound | (3) a mixture | | | | | | | | |
| (2) an element | (4) a substance | | | | | | | | |
| (1) becomes yellow | (3) remains ionic | | | | | | | | |
| (2) becomes a liquid | (4) remains magnetic | | | | | | | | |

Base your answers to questions 7 on the information below and on your knowledge of chemistry.

Rubbing alcohol sold in stores is aqueous 2-propanol, $\text{CH}_3\text{CHOHCH}_3(\text{aq})$. Rubbing alcohol is available in concentrations of 70.% and 91% 2-propanol by volume.

To make 100. mL of 70.% aqueous 2-propanol, 70. mL of 2-propanol is diluted with enough water to produce a total volume of 100. mL. In a laboratory investigation, a student is given a 132-mL sample of 91% aqueous 2-propanol to separate using the process of distillation.

- 7 State evidence that indicates the proportions of the components in rubbing alcohol can vary.

Answer Keys

1 3

2 4

3 3

4 1

5 4

6 4

7 Allow 1 credit. Acceptable responses include, but are not limited to:

- The aqueous solutions of 2-propanol do not contain the same proportions of alcohol and water.
- Rubbing alcohol is sold as 70.% and 91% solutions.