Chemistry Study Materials for Class 9 (NCERT Based notes of Chapter -02)

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IS MATTER AROUND US PURE

EXERCISE QUESTIONS PAGE NO. 28 to 30

Q4. Explain the following giving examples.

(a) saturated solution

(b) pure substance

(c) colloid

(d) suspension

Answer:

(a) Saturated solution

A saturated solution is a solution in which the maximum amount of solute has been dissolved at a given temperature. The solution cannot dissolve beyond that amount of solute at that temperature. Any more solute added will settle down at the bottom of the container as a precipitate.

Suppose 500 g of a solvent can dissolve a maximum of 150 g of a particular solute at 40°C. Then, the solution obtained by dissolving 150 g of that solute in 500 g of that solvent at 300 K is said to be a saturated solution at 300 K.

(b) Pure substance

A pure substance is a substance consisting of a single type of particles i.e., all constituent particles of the substance have the same chemical properties.

For example, salt, sugar, water are pure substances.

(c) Colloid

A colloid is a heterogeneous mixture. The size of the solutes in this mixture is so small that they cannot be seen individually with naked eyes, and seems to be distributed uniformly throughout the mixture. The solute particles do not settle down when the mixture is left undisturbed. This means that colloids are quite stable. Colloids cannot be separated by the process of filtration. They can be separated by centrifugation. Colloids show the Tyndall effect. For example, milk, butter, foam, fog, smoke, clouds.

(d)Suspension

Suspensions are heterogeneous mixtures. The solute particles in this mixture remain suspended throughout the bulk of the medium. The particles can be seen with naked eyes. Suspension shows the Tyndall effect. The solute particles settle down when the mixture is left undisturbed. This means that suspensions are unstable. Suspensions can be separated by the method of filtration. For example, mixtures of chalk powder and water, wheat flour and water.

Q5. Classify each of the following as a homogeneous or heterogeneous mixture. Soda water, wood, air, soil, vinegar, filtered tea

Answer:

Homogeneous mixtures: Soda water, air, vinegar

Heterogeneous mixtures: Wood, soil, filtered tea

Q6. How would you confirm that a colourless liquid given to you is pure water?

Answer: Every liquid has a characteristic boiling point. Pure water has a boiling point of 100°C (373 K) at 1 atmospheric pressure. If the given colourless liquid boils at even slightly above or below 100°C, then the given liquid is not pure water. It must boil at sharp 100°C. Thus, by observing the boiling point, we can confirm whether a given colourless liquid is pure water or not.

Q7. Which of the following materials fall in the category of a "pure substance"?

(a) Ice (b)Milk (c)Iron (d)Hydrochloric acid (e)Calcium oxide (f)Mercury (g)Brick (h)Wood (i)Air.

Answer: The following materials fall in the category of a "pure substance":

(a) Ice (c) Iron (d) Hydrochloric acid

(e) Calcium oxide (f) Mercury

Q8. Identify the solutions among the following mixtures.

(a) Soil (b)Sea water (c)Air (d)Coal (e)Soda water.

Answer: The following mixtures are solutions:

(b) Sea water (c) Air (e) Soda water

Q9. Which of the following will show "Tyndall effect"?

(a) Salt solution

(b) Milk

(c) Copper sulphate solution

(d) Starch solution.

Answer: Milk and starch solution will show the "Tyndall effect".

Q10. Classify the following into elements, compounds and mixtures.

(a) Sodium **(b) Soil** **(c) Sugar solution**

(d) Silver **(e) Calcium carbonate** **(f) Tin**

(g) Silicon **(h) Coal** **(i) Air**

(j) Soap **(k) Methane** **(l) Carbon dioxide** **(m) Blood**

Answer:

Elements:- (a) Sodium (d) Silver (f) Tin (g) Silicon

Compounds:- (e) Calcium carbonate (k) Methane (l) Carbon dioxide

Mixtures:-

(b) Soil (c) Sugar solution (h) Coal

(i) Air (j) Soap (m) Blood

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Q11. Which of the following are chemical changes?

(a) Growth of a plant **(b) Rusting of iron**

(c) Mixing of iron filings and sand **(d) Cooking of food**

(e) Digestion of food **(f) Freezing of water** **(g)Burning of a candle.**

Answer: The following changes are chemical changes:

(a) Growth of a plant (b) Rusting of iron (d) Cooking of food

(e) Digestion of food (g) Burning of candle

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