

# NTSE

NCERT Solutions for Class 9 Science  
CHEMISTRY – Is Matter around us Pure



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## NCERT ANNEXURE

Below you can go through the subjective type questions and solutions from NCERT Annexure.

1. Name the technique to separate:

(i) Butter from curd (ii) Salt from sea water (iii) Camphor from salt.

Ans. (i) Butter from curd can be separated by the technique of **centrifugation**.

(ii) Salt from sea water can be obtained by **evaporation or crystallisation**.

(iii) Camphor is a sublimable substance, but salt is not. Therefore, camphor can be separated from salt by **sublimation** technique.

2. Try segregating the things around you as pure substances or mixtures.

(a) distilled water (b) curd (c) diamond (d) ice cream  
(e) kerosene oil (f) cooking oil (g) steel (h) graphite  
(i) raw rubber (j) vulcanized rubber (k) solder wire

Ans. **Pure substances:** Distilled water, diamond, graphite, raw rubber.

**Mixtures:** Curd, ice cream, kerosene oil, cooking oil, steel, vulcanized rubber, solder wire (alloy of lead and tin).

3. Write the steps you would use for making tea. Use the words – solution, solvent, solute, dissolve, soluble, insoluble, filtrate and residue.

Ans. Take some water in a kettle and heat it on a burner. To the hot water, add some tea leaves and boil. Water acts as **solvent** while the tea leaves contain the **solute** caffeine. Caffeine being **soluble** in water **dissolves** to form a brownish black mixture. To the mixture, add some sugar and milk and boil again. The sugar and milk also act as **solutes** and dissolve in **solvent** water. **Filter** the mixture through a sieve. The tea leaves being **insoluble** remain as **residue** on the sieve while a **solution** of caffeine, sugar and milk in water called tea is obtained as the **filtrate**.

4. Explain the following giving examples.

(a) Saturated solution

(b) Pure substance

(c) Suspension

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- Ans. (a) Saturated Solution:** A solution which contains the maximum amount of solute that can be dissolved in it at the given temperature and no more solute can be dissolved in it at that temperature is called a saturated solution.
- (b) Pure substance:** A pure substance contains particles of only one kind of matter. Pure substances can be either elements such as copper, iron, mercury, hydrogen, oxygen, etc. or compounds such as sugar, common salt, water, etc.
- (d) Suspension:** Suspensions are heterogeneous mixtures. These consist of materials that are insoluble in a solvent and have particle size big enough ( $> 100$  nm) to be seen with the naked eye.

5. 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

**Ans.** Ice, iron, calcium oxide and mercury are pure substances since they contain particles of only one kind of matter. In contrast, milk, hydrochloric acid (hydrogen chloride gas dissolved in water) brick and air cannot be called pure substances because they consist of particles of more than one kind of matter.

## NCERT EXEMPLAR

Here are the Objective Type questions and their solutions from NCERT Exemplar.

1. Which of the following statements are true for pure substances?

- (i) Pure substances contain only one kind of particles  
(ii) Pure substances may be compounds or mixtures  
(iii) Pure substances have the same composition throughout  
(iv) Pure substances can be exemplified by all elements other than nickel

- (A) (i) and (ii)                      (B) (i) and (iii)                      (C) (iii) and (iv)                      (D) (ii) and (iii)

**Ans.** (B)

2. Rusting of an article made up of iron is called

- (A) corrosion and it is a physical as well as chemical change  
(B) dissolution and it is a physical change  
(C) corrosion and it is a chemical change  
(D) dissolution and it is a chemical change

**Ans.** (C)

3. A mixture of sulphur and carbon disulphide is

- (A) heterogeneous and shows Tyndall effect                      (B) homogeneous and shows Tyndall effect  
(C) heterogeneous and does not show Tyndall effect                      (D) homogeneous and does not show Tyndall effect

**Ans.** (A)

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*M. Pareek*

An  
**NTSE Scholar**  
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4. Tincture of iodine has antiseptic properties. This solution is made by dissolving  
(A) iodine in potassium iodide (B) iodine in vaseline  
(C) iodine in water (D) iodine in alcohol

Ans. (D)

5. Which of the following are homogeneous in nature?

(i) Ice (ii) Wood (iii) Soil (iv) Air  
(A) (i) and (iii) (B) (ii) and (iv) (C) (i) and (iv) (D) (iii) and (iv)

Ans. (C)

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