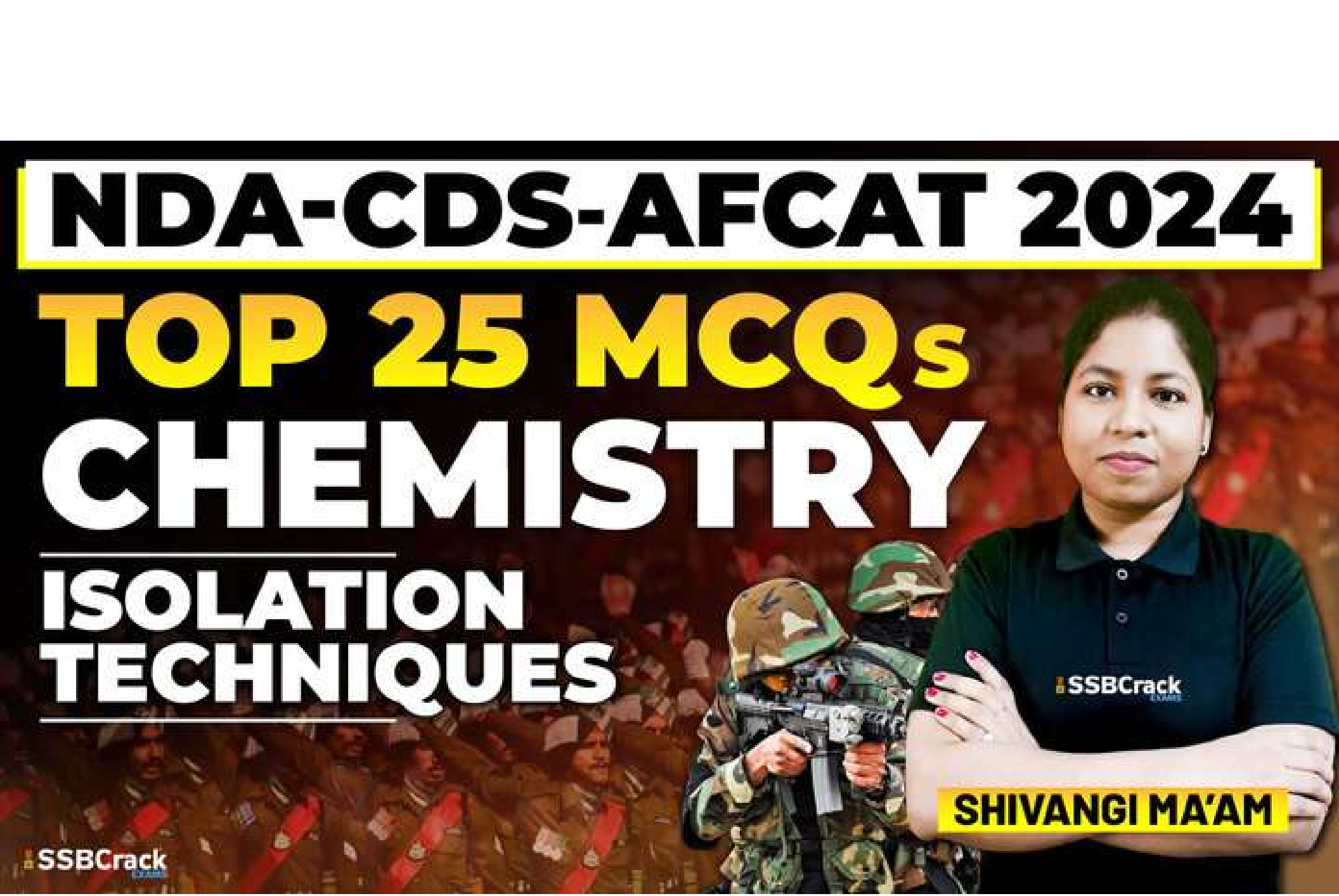
NDA-CDS-AFCAT 2024

TOP 25 MCQs

CHEMISTRY

ISOLATION TECHNIQUES



Which Of The Following Separation Methods Should Be Adopted To Separate An Aqueous Mixture Of Common Salt Contaminated With Limestone?

a) Use of separating funnel and then filtration of the aqueous mixture

b) Distillation and then use of a separating funnel

c) Sublimation and then distillation of the aqueous mixture

d) Filtration and then evaporation of the aqueous mixture

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- Filtration is a method of separating pure substances into mixtures made up of particles, some of which are large enough to be captured with a porous material.
- Evaporation is a method employed to isolate homogeneous mixtures when one or more salts are dissolved.

Which Of The Following Method Is NOT Used For Separation Of A Solid And A Liquid?

a) Fractional Distillation

b) Evaporation

c) Filtration

d) Purification by Crystallization

Which Of The Following Method Is NOT Used For Separation Of A Solid And A Liquid?

a) **Fractional Distillation**

b) Evaporation

c) Filtration

d) Purification by Crystallization

- Fractional Distillation is NOT used for the separation of a solid and a liquid.
- Fractional distillation is the separation of the mixture into its components or fractions.

Which Of The Following Methods Can Be Used To Separate Acetone And Water From Their Mixture?

a) Chromatography

b) Fractional distillation

c) Distillation

d) By using a separating funnel

Which Of The Following Methods Can Be Used To Separate Acetone And Water From Their Mixture?

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- It is used to separate two or more miscible liquids that have a large difference between their boiling points.

A magnet could be used to separate

a) sand and salt

b) sand and iron filings

c) water and sand

d) colours in a food dye

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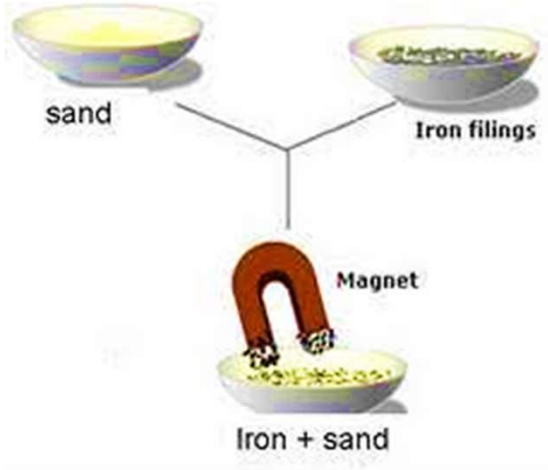

The Phenomenon Of Water Being Able To Rise Up A Narrow Tube Is Called

a) distillation

b) capillary action

c) chromatography

d) filtration

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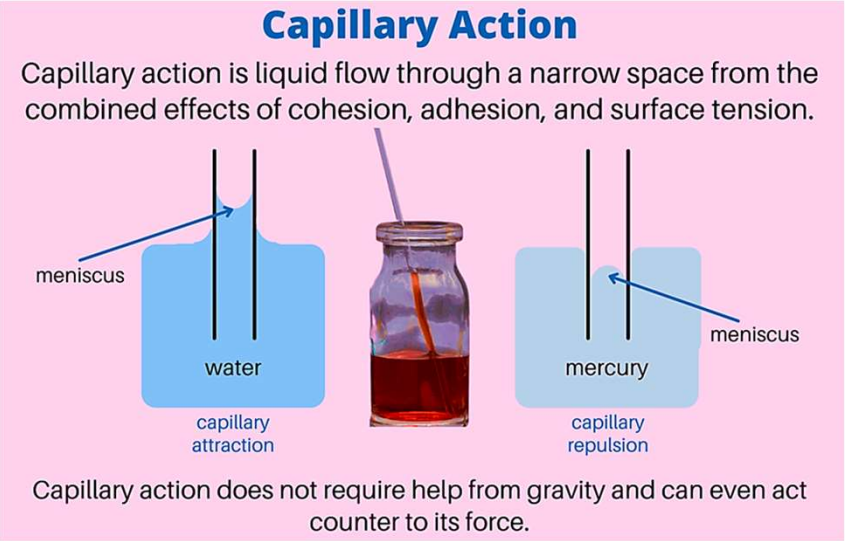

The Diagram Shows The Chromatogram For Three Colouring Dyes And That For A Brown Marker. What Dye(s) Are Contained In The Marker's Ink?

a) purple only

b) green and yellow

c) purple and green

d) purple and yellow

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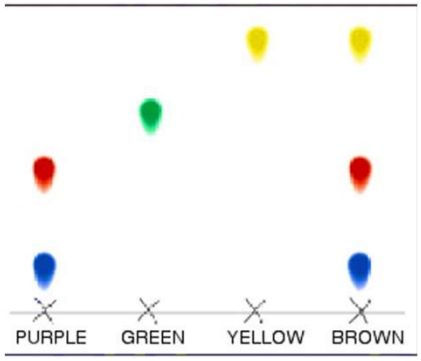
- The three primary colors used when mixing dyes or paints are red, yellow, and blue. And non-primary-color markers, like purple, brown, and orange.



Liquids That Do NOT Mix Are Said To Be

a) flammable

b) soluble

c) immiscible

d) miscible

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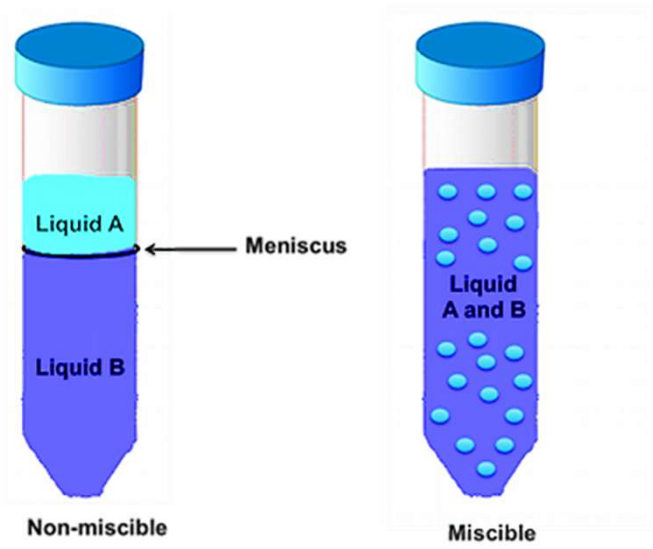

Oil And Water May Be Separated By Using

a) a separating funnel

b) chromatography paper

c) a filter funnel

d) a Liebig condenser

Oil And Water May Be Separated By Using

a) **a separating funnel**

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Which One Of The Following Methods Would NOT Be Used To Separate An Insoluble Solid And A Liquid?

a) evaporation

b) decanting

c) filtration

d) chromatography

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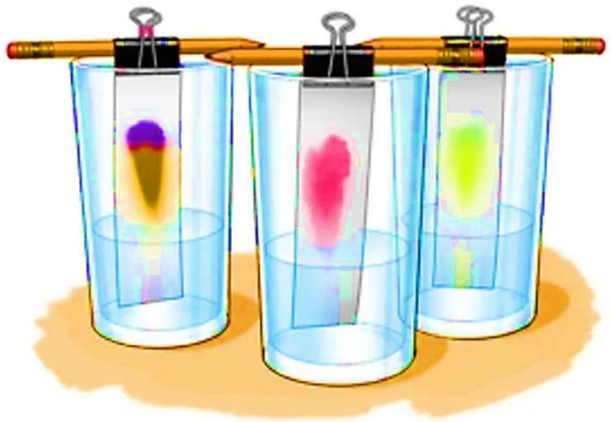

Sodium Chloride Can Be Separated From Rock Salt By First Adding Water To The Mixture To Dissolve The Sodium Chloride. The Separation Then Takes Place In Two Stages:

a) evaporation followed by filtration

b) filtration followed by decanting

c) filtration followed by evaporation

d) distillation followed by decanting

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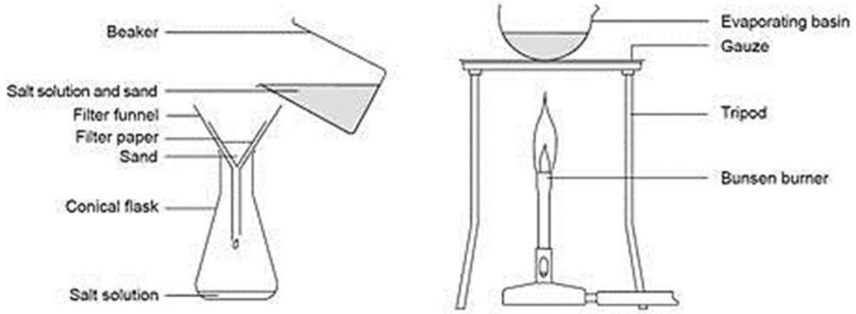

Which one of the following is a disadvantage of evaporation?

a) It always requires heat

b) It cannot be used for insoluble solids

c) The solvent is not recovered

d) All of the solute is recovered

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- The Solvent is not covered in Evaporation.

Which One Of The Following Pairs Of Separation Techniques Will BOTH Separate Salt From A Mixture Of Salt And Water?

a) Distillation and evaporation

b) Decanting and distillation

c) Decanting and filtration

d) Chromatography and evaporation

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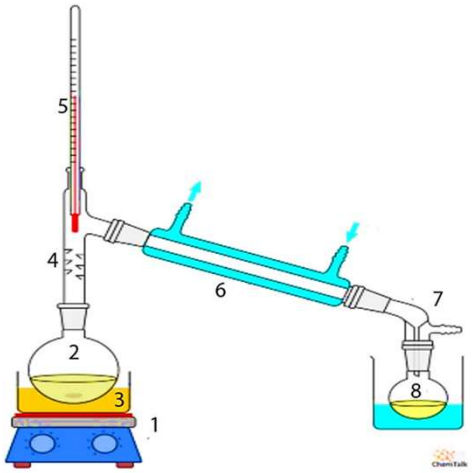

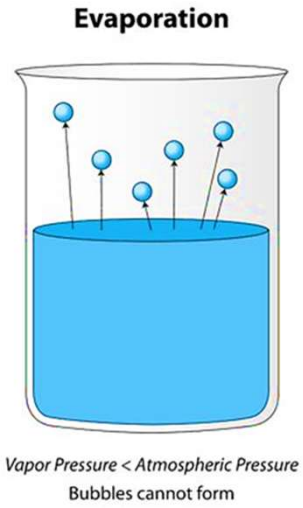

In A Coffee Machine, The Ground Coffee Is Separated From The Coffee Solution By Using

a) tissue paper

b) toilet paper

c) filter paper

d) sand paper

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a) **tissue paper**

b) toilet paper

c) filter paper

d) sand paper

Which One Of The Following Solids Is Immiscible In Water?

a) sugar

b) sand

c) salt

d) copper sulfate

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a) sugar

b) sand

c) salt

d) copper sulfate

- Sand is Immiscible.

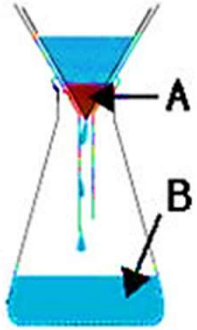
The Diagram Shows The Apparatus For Separating Soil And Water. What Are The Labelled Parts?

a) A = residue, B = filtrate

b) A = filtrate, B = residue

c) A = distillate, B = filtrate

d) A = residue, B = distillate



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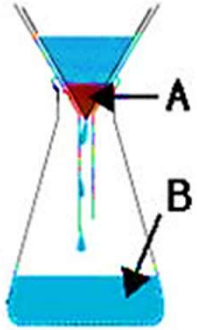

Dyes in water soluble markers may be separated by means of

a) distillation

b) chromatography

c) evaporation

d) decanting

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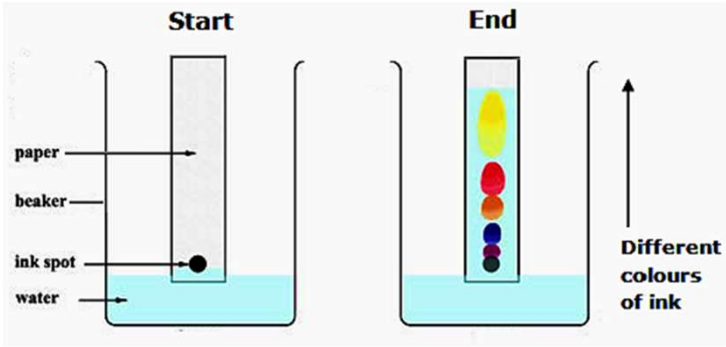

Air is a mixture of

a) liquids and gases

b) liquids

c) solids

d) gases

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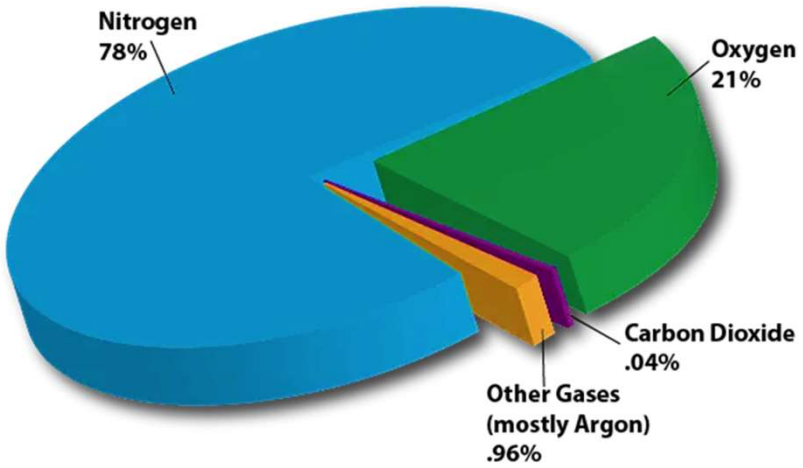

Evaporation is used to

a) separate solids of different particle size

b) obtain the solute from the solution

c) separate the dyes in a marker

d) separate liquids of different boiling points

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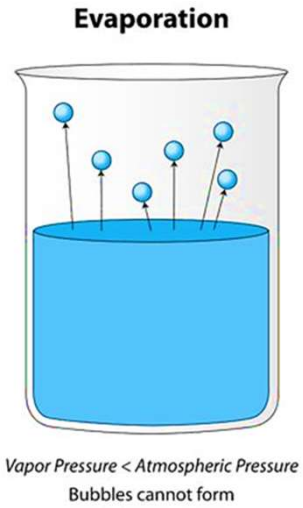

Which One Of The Following Is NOT A Mixture?

a) Air

b) Sugar

c) Paint

d) Crude oil

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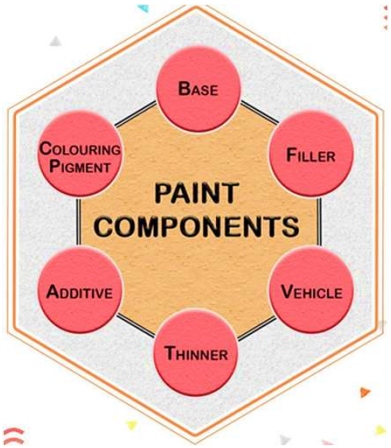
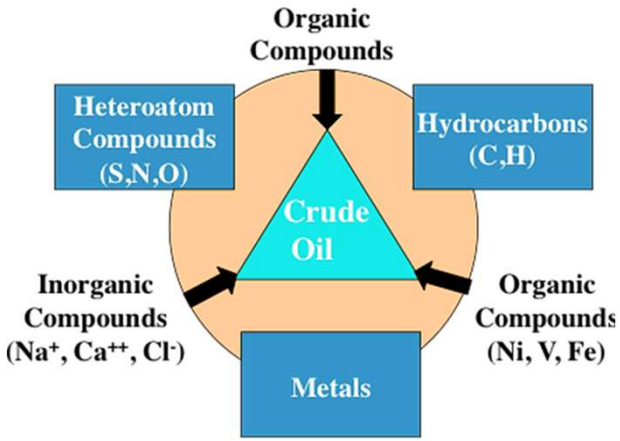




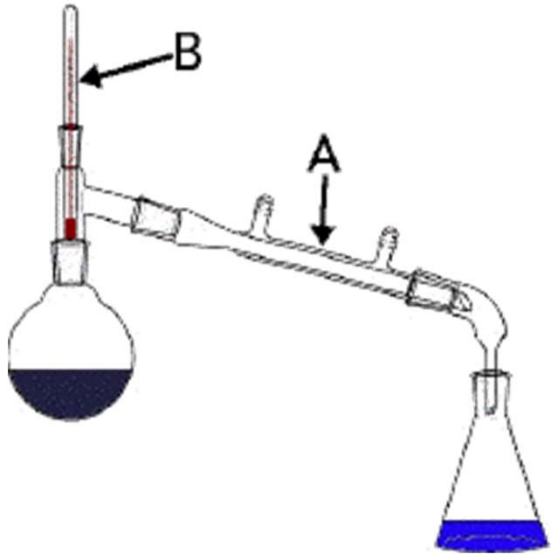
In The Distillation Apparatus Shown, What Are The Parts Labelled A And B?

a) A = funnel, B = thermometer

b) A = thermometer, B = funnel

c) A = Liebig condenser, B = thermometer

d) A = Liebig condenser, B = flask



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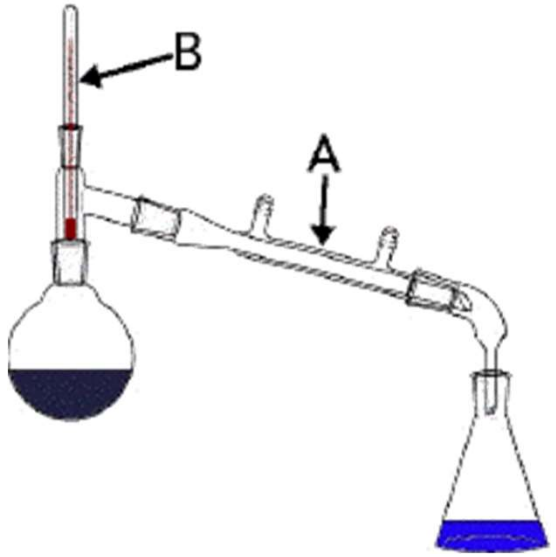

An Additional Substance Is Added Which Combines With Impurities To Form A Fusible Mass During The Process Of Smelting. The Additional Substance Is Called

a) Flux

b) Slag

c) Gangue

d) Ore

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- A material known as flux can either be an acidic oxide (SiO_2) or a basic oxide (CaO, MgO). Slag is created when it mixes with certain impurities (gangue particles). This is simple to remove.

The Method Of Zone Refining Of Metals Is Based On The Principle Of

a) Greater mobility of pure metal than that of impurity.

b) Higher m.pt. of the impurity as that of the pure metal.

c) The greater noble character of the solid metal than that of the impurity

d) Greater solubility of the impurity in the molten state than in the solid.

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c) The greater noble character of the solid metal than that of the impurity

d) Greater solubility of the impurity in the molten state than in the solid.

Explanation

- This approach is predicated on the idea that impurities are more soluble in the metal's melt than in its solid state. A rod made of impure metal has a circular mobile heater mounted to one end of it. The heater is moved forward while the molten zone follows. The pure metal separates from the melt as the heater advances, while the impurities are carried into the nearby molten zone.

Which Of The Following Metals Are Not Removed By Electrolysis?

a) Na

b) Mg

c) Al

d) Fe

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b) Mg

c) Al

d) Fe

- In fact, the correct reducing agent must be used to remove metal from its ore. Iron is a rather active metal, therefore carbon reduction rather than electrolysis can be used to decrease its oxides. Reactive metals like aluminium are recovered using electrolysis, whereas less reactive metals like iron are recovered using carbon reduction.

Oxides Are Formed When Food Is Roasted. What Is The Necessity To Roast Oxide Ores?

a) To avoid gangue particles

b) To get crude metal by using an oxidizing agent

c) To remove the volatile impurities that are present in the form of their oxides

d) To make the ore porous

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- Oxides that are volatile contaminants are removed from oxide ores by roasting. By reduction, it is simpler to get metals from their oxides than from carbonates or sulfides. As a result, before the ore can be reduced, it must first be converted to metal oxide.

Which Of The Following Is Not A Suitable Ore For Extracting Iron?

a) Hematite

b) Magnetite

c) Siderite

d) Iron Pyrites

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b) Magnetite

c) Siderite

d) Iron Pyrites

- Iron pyrite has the chemical formula FeS2. It is cheaper to extract iron from other ores such as magnetite and hematite rather than exothermic iron pyrite since it creates a safety issue in mines. Pyrites can change into sulfurous minerals since they are often unstable.

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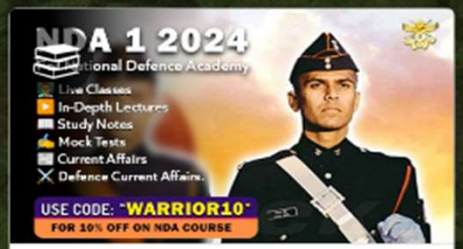

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