

Chapter 2 – Quick Revision Sheet

Is Matter Around Us Pure



Core Idea — *One-Line Anchor*

Matter around us is rarely pure.

Most substances are mixtures, and their properties depend on composition, not appearance.



Types of Matter — *(Crystal Clear)*

A pure substance has a fixed composition and consistent properties throughout. It includes both elements and compounds, and it cannot be separated by physical methods.

A mixture contains two or more substances mixed in any ratio. The components retain their individual properties and can be separated using simple physical processes.



Types of Mixtures — *(High-Yield Table)*

Mixtures are classified based on uniformity and particle size.

Solutions are homogeneous with extremely small particles.

Colloids appear homogeneous but are actually heterogeneous at microscopic level.

Suspensions are clearly heterogeneous with large, visible particles.



Solutions — *The Scoring Area*

A solution is formed when a solute dissolves in a solvent to make a uniform mixture.

It is transparent, stable, cannot be filtered, and never shows Tyndall effect.



Concentration of Solution — *(Most Important Formula)*

$$\text{Concentration (\%)} = \frac{\text{Mass of solute}}{\text{Mass of solution}} \times 100$$



Frequently asked in numericals



Colloids — *“Hidden Mixtures”*

Colloids have particles too small to see, too big to ignore.

They don't settle, they pass through filters, but they scatter light — this is called the Tyndall effect.

Milk, fog, smoke, blood — all colloids.



Suspension — *Easy to Identify*

Suspensions are messy and honest.

Particles are large, visible, settle on standing, and can be filtered easily.

If it settles, it's a suspension.



Separation Techniques — *(Very Exam-Friendly)*

There is no universal method to separate mixtures.

Evaporation removes solvents, crystallization gives purer solids, distillation separates liquids by boiling point, chromatography separates colors, and separating funnel works for immiscible liquids.



Physical vs Chemical Change — *(1-Mark Favorite)*

Physical change → no new substance, usually reversible

Chemical change → new substance formed, irreversible

Melting ice vs burning paper — exam favourites.



Elements & Their Types — *Three Personalities*

Based on Properties

- Metals → Conduct heat & electricity
- Non-metals → Poor conductors
- Metalloids → Show mixed properties



Compounds – *A New Substance*

Compounds are formed when elements combine chemically in a fixed ratio. They have properties entirely different from their constituent elements and cannot be separated physically.