Chemistry Topic C12: Chemical Analysis

1. Key Terms

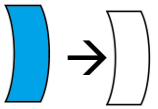
Analysis	Testing a substance and concluding the composition
Compound	Two or more different atoms bonde d together
Mixture	At least two different elements or compounds together.
Pure	Made of one substance only
Impure	Made of more than one substance
Formulation	An impure substance designed as a useful product
Composition	The amount of each chemical in a substance
Solubility	How easily a substance dissolves in a solvent
Solvent	A chemical other chemicals dissolve into
Stationary Phase	The part the does not move in chromatography
Mobile Phase	The part that moves and carries the mixture under analysis
Retention Factor	Rf. How well the solvent retains the chemical

2. Substance Purity

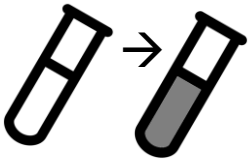
Pure	Impure	Formulation
Melt/boil @ single temp. e.g. Gold	Melt/boil over a range of temp. e.g. River water	Made of definite proportions e.g. Medicines

4. Gas Tests

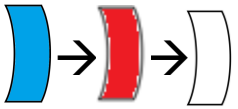
Test for H_2O: Cobalt chloride paper. Starts blue, turns white/pink



Test for CO_2: Limewater. Starts clear, turns milky

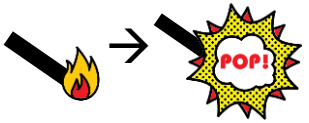


Test for Cl_2: Litmus paper. Starts blue, turns red then white (bleaches)



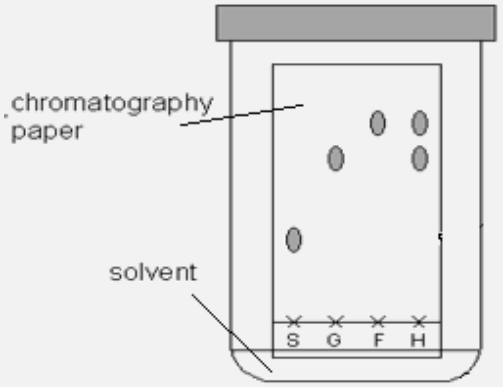
Test for O_2: Glowing splint, relights

Test for H_2: Lit splint, "pops"



3. Chromatography

1. Draw a pencil line 2cm from bottom of filter paper
2. Add a small spot of known/unknown substances on the line
3. Put 1cm depth of water into beaker, suspend filter paper in water.
4. Wait for water solvent to travel
5. Remove paper.
6. Mark solvent front with pencil line.



S, G, F = all pure (one spot)
H = mixture of G & F (2 spots at same distances as G and F)

$$Rf = \frac{\text{Distance moved by spot}}{\text{Distance moved by solvent}}$$

- Rf depends on the solvent
- If two Rf values are the same (in the same solvent) the substances are likely to be the same