

Chemistry notes and worksheet: acids, bases and salt flashcard



Characteristics of Alkalis * soapy feeling * turns red litmus paper blue * react with acids to form salt & water * react with ammonium salts to form

ammonia, salt & water Reactions of Alkalis 1. Alkali (a soluble base) + acid

salt + water 2. Alkali + ammonium salt salt + ammonia + water Examples of

ammonium salts Ammonium chloride | Enoch | Ammonium sulfate | (NH)₄SO₄

1 Ammonium nitrate | NANNY 1 name of acid. E. G. : Sodium hydroxide +

Sulfuric acid Sodium sulfate + water Lithium hydroxide + ammonium

colorimetric chloride + NH₄⁺ + H₂O Practice Questions on Reaction to AY 1.

Lithium hydroxide + cupric acid 2. Potassium hydroxide + 3. Calcium oxide

+ ammonium acid nitrate + water 4. Copper(II) hydroxide + ammonium

sulfate 5.

Hydroxide + chloride sodium ammonia + Bases Definition: Bases are metal

oxides (also known as basic oxides) that react with acids to produce salts

and water. Note: Most bases are insoluble except bases with Group I metals

and ammonium ion (NH₄⁺); Soluble Bases | Insoluble Bases | Bases containing

group I metals | Bases containing all other metals generally Bases containing

ammonium ion (NH₄⁺) | A base that dissolves in water is known as an...

Alkali.

Oxides Neutral oxide Acidic oxide Empathetic oxide Basic Non-metals +

Oxygen Metals + Oxygen Type of Oxides | Basic Oxide | Empathetic oxide |

Acidic oxide | Neutral oxide | Examples | coo, Anna, MGM | Pub, AY, zoon | co,

ass, IPPP 1 co, H₂O 1 Reaction | Reacts with acids to form salt & waters

Reacts with either acids or bases to form salt & water (act as both acid and

base) | Reacts with bases to form salt & water | No reaction with acids or

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bases I TTY or insolubility to oxides Soluble basic oxide: 1st group oxides & 2nd group from Ca downwards Insoluble basic oxide: COO, Mann, Fee,

Insoluble acidic oxide: Isis Salts Definition: A compound formed when one or more hydrogen ions in an acid are displaced by a cationic. Type of Salt I

Soluble I Insoluble I Nitrate I All metals I None I Sulfate I Most metals I Ca, BP, Baa I Chloride I Most metals I Gag, BP I Iodide I Most metals I Gag, BP I Note:

All 1st group metals & ammonium salts are soluble e. G. : potassium chloride, ammonium chloride are both soluble. Preparation of Salts

(a) Titration method: suitable for producing soluble salts which ContiGroup I metals and ammonium ions; both reactants are aqueous solutions

Preparation steps: 1.

Fill burette with acid and use a pipette to draw an accurate volume of alkali into a conical flask. 2. Add 2 to 3 drops of indicator (e. G. Methyl orange or phenolphthalein into the flask.

3. Titrate, drop by drop, the acid from the burette to the alkali. Swirl the solution each time the acid is added. 4. Upon complete reaction, the solution changes color and note the volume of acid used.

5. In a separate beaker, repeat the experiment using the exact volume of acid and alkali, only this time without the indicator. A salt solution is formed.

6.

Heat the salt solution until it becomes saturated, and leave it to cool. .

Crystals of salt will be formed and let it dry after filtering off excess water.

(b) Excess method: suitable for producing soluble salts when one of the reactants is a solid.

The solid reactant will be added in excess. 1. Pour a fixed volume of acid into a beaker and heat to warm it. 2.

Add solid - metal/metal oxide/metal carbonate/insoluble hydroxide - until there is no further reaction. This indicates that all acid has reacted. 3. Filter the mixture to remove excess unrelated solid. The filtrate is then the salt solution. 4.

Heat filtrate until it becomes saturated and then allow it to cool.

Cooling allows salt crystals to form (crystallization). 5. Filter off crystals from the cooled saturated solution and dry them by pressing them between filter paper. (c) Precipitation method: used to produce an insoluble salt.

One of the reactants must be a soluble salt. Soluble salt + soluble salt
insoluble salt + soluble salt Soluble salt + acid insoluble salt + acid