

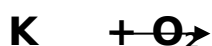
1- Action of atmospheric air



2- With water :-



3- With oxygen :-



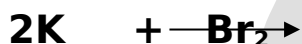
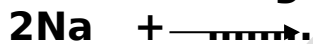
4- With acids



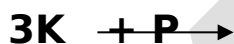
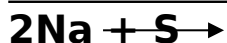
5- With hydrogen:-



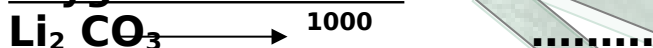
6- With halogens :-



7- With other nonmetals :-



8- The action of heat on its oxygenated salt :-



b) Alkaline metal nitrates decompose partially



Detection of Aluminum Al^{+3}



- Detection of copper(II) (Cu^{++})



Reaction with mineral acids



Sodium carbonate:

Preparation :

In industry (Solvay)

method :- By passing ammonia and carbon dioxide gases in a saturated aqueous solution of sodium chloride to produce sodium bicarbonate which will decompose by heating to sodium carbonate, Water and carbon dioxide



Properties :



How can you prepare :

- 1- Ammonia gas from lithium
- 2- Sodium hydroxide by two methods
- 3- Potassium carbonates from potassium super oxide
- 4- Oxygen from potassium
- 5- Ammonium chloride from ammonia

- 6- Sodium meta aluminates from aluminum chloride
- 7- Black copper oxide from copper sulphate

What is the effect of heat on each of the following :

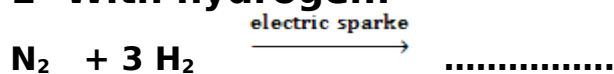
- 1- Lithium carbonate
- 2- Sodium nitrate
- 3- Copper hydroxide
- 4- Sodium bicarbonate

What is the action of :

- 1- Atmospheric air on lithium
- 2- Hydrochloric acid on sodium metal
- 3- Bromine on potassium
- 4- Hydrogen on lithium

Properties of nitrogen

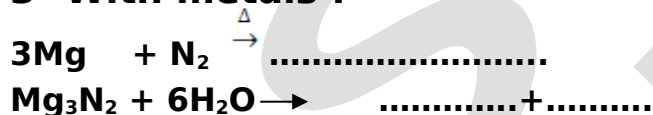
1- With hydrogen:



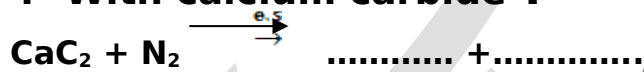
2- With Oxygen :



3- With metals :



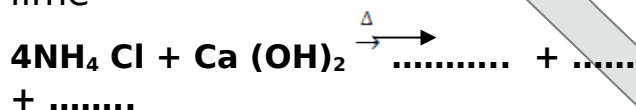
4- With calcium carbide :



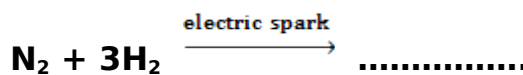
The nitrogenous compounds

1- Ammonia gas NH₃

Can be prepared in lab By the action of heat on a mixture of ammonium chloride and slaked lime

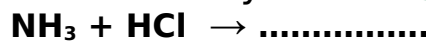


Ammonia can prepared in industry



Detection of ammonia gas

It gives dense white fumes of ammonium chloride when subjected to a glass rod wetted with conc. Hydrochloric acid



Ammonia is an alkaline.



Haber's method

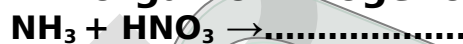
Ammonia gas can be prepared

Detection of ammonia gas

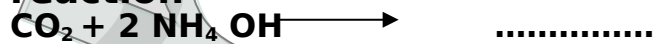


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Inorganic nitrogenous salts



By double substitution reaction



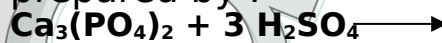
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Preparation of phosphor nitrogenous fertilizers

Orthophosphoric acid firstly is prepared by :



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Then



Preparation of nitric acid in lab



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Action of heat



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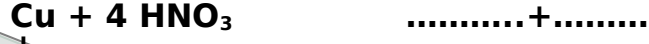
Action of acid on metals



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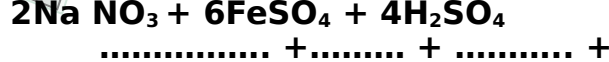


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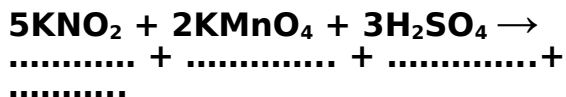
Detection of nitrate ion (NO₃)-



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To differentiate between nitrite and nitrate salts



Important questions

How can you obtain

- 1- Ammonia from calcium carbide
- 2- Ammonia from ammonium chloride
- 3- Ammonia from nitrogen
- 4- Nitric acid from potassium nitrate

How can you differentiate between

- 1- Conc. Nitric acid and dilute nitric acid
- 2- Iron and copper by using nitric acid
- 3- Dil. Nitric acid and dil. Sulphuric acid by using iron filings
- 4- Sodium nitrate and sodium nitrite solution
- 5- Nitrogen gas and ammonia gas

What is the effect of heat on each of

- 1- Nitric acid
- 2- The mixture of ammonium chloride and calcium hydroxide

What is the reaction of nitrogen with

- 1- Oxygen
- 2- Hydrogen
- 3- Magnesium
- 4- Calcium carbide

What is the effect of water on the following

- 1- Magnesium nitride
- 2- Calcium Cyanamid
- 3- Ammonia gas

What is the reaction of ammonia with

- 1- Nitric acid
- 2- Sulphuric acid
- 3- Phosphoric acid