

light green, bluish green, and after a long time red, through absorption of O and formation of ferric oxyhydrate. (b). Ferric Salts form no carbonate.

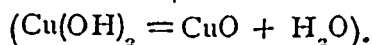
(7). H_2S in alkaline solution, throws down in every case FeS as a black precip.

The Cupric Salts are easily distinguishable:

(1). H_2S in acidified Solution gives a black precipitate CuS .

(2). $NH_4^+ \left\{ \begin{array}{l} H^+ \\ H^+ \end{array} \right\} S$ the same prec. insoluble in excess.

(3). KOH gives a bright blue precipitate $Cu(OH)_2$ which, upon the application of heat, becomes black,



(4). K_4FeCy_6 (Potassium Ferrocyanide) gives a reddish brown precipitate Cu_2FeCy_6

(5). Na_3AsO_3 (Trisodic Arsenite) forms a green precipitate, with a Cupric Salt $= CuHAsO_3$, known as Scheeles green, if solution be cautiously neutralized with an Alkali.

(6). $NH_4^+ \left\{ \begin{array}{l} O \\ H \end{array} \right\} (HO)_2$ forms a blue precipitate $Cu(OH)_2$ which is readily soluble in excess of reagent, forming a deep blue liquid $\left(\begin{array}{l} NH_2Cu(SO_4) \\ NH_4^+ \end{array} \right)$

7. Na_2CO_3 gives a green precipitate and is a basic Salt $CuCO_3 + Cu(OH)_2$

Cuprous Salts are not stable, taking up Oxygen from the air and forming the corresponding Cupric Salts.

Cu_2Cl_2 has the property of absorbing large quantities of Carbonic Oxide gas.

The Mercuric Salts corresponding to Mercuric Oxide HgO or Mercuric Sulphide may be distinguished by the following tests:

(1) NH_4HO gives a white precipitate,
 $HgCl_2 + 2NH_4HO = NH_2HgCl + NH_4Cl + 2H_2O$ ($Hg(NO_3)_2 = NH_2HgNO_3$)

(2) KI gives a red precipitate,
 $2KI + HgCl_2 = HgI_2 + 2KCl$.

(3). KOH , gives a yellow precipitate,
 $HgCl_2 + 2(KOH) = Hg(OH)_2 + 2KCl$, but the $Hg(OH)_2$ only exists for a moment, splitting up into H_2O and HgO .

(4). HCl gives no precipitate!!!

(5). A Mercurous Salt in acid solution gives with H_2S in the beginning a white precipitate $= HgCl_2 + HgS$, a double combination, on the addition of more H_2S black HgS is precipitated.

The Mercurous Salts corresponding to Mercurous Oxide Hg_2O or Sulphide Hg_2S , may be thus distinguished:—

(1). NH_4HO , gives $\left\{ \begin{array}{l} NH_2Hg_2Cl \\ NH_2Hg_2NO_3 \end{array} \right\}$

a black precipitate.

(2). KI , gives HgI , a green precipitate.

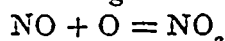
(3). KOH , gives $Hg_2(OH)_2 = Hg_2O + H_2O$, a black precipitate.

(4). HCl , gives Hg_2Cl_2 a white precipitate.

(5). When H_2S is added to an acidified solution of a Mercurous Salt, a black precipitate immediately falls.

Q.—8. How much $KClO_3$ is required to furnish enough Oxygen which, when brought into contact with sufficient Nitrogen Dioxide, will form 33 litres of Nitrogen Tetroxide, measured at $-1^\circ C$ and 780 m.m. pressure?

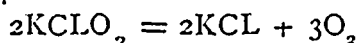
33 litres NO_2 at $-1^\circ C$, and 780 m. m. pressure, become $(33 \times \frac{273}{273} \times \frac{76}{780})$ litres at $0^\circ C$ and 76 m.m. pressure. But 11.2. litres of NO_2 at $0^\circ C$ and 760 m. m. weigh 23 grammes, $\therefore (33 \times \frac{273}{273} \times \frac{76}{780} \times \frac{11.2}{11.2} \times \frac{23}{1})$ grammes = 69.8. grammes = weight of required Nitrogen Tetroxide.



hence every 46 parts of NO_2 require 16 parts Oxygen, $\therefore$ 69.8 grammes NO_2 require 69.8×16

$$\frac{69.8 \times 16}{46} = 24.27 \text{ grammes of Oxygen.}$$

46



hence, 245 parts $KClO_3$ yield 96 parts of Oxygen, $\therefore$ 24.27 grammes of Oxygen require 24.27×245

$$\frac{24.27 \times 245}{96} = 61.93 \text{ grammes of Potassic Chlorate.}$$

Chlorate.

Q.—9. (a). How would you separate Calcium, Barium and Magnesium in solution, (b) What decomposition do Silver Chloride