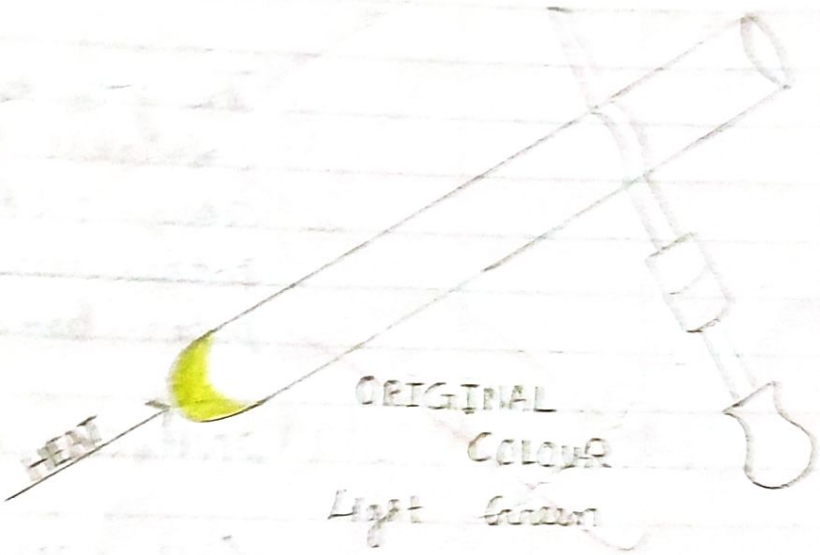

ORIGINAL
COLOUR
Light Green

EXPT NO: 14

DATE : 29/04/19

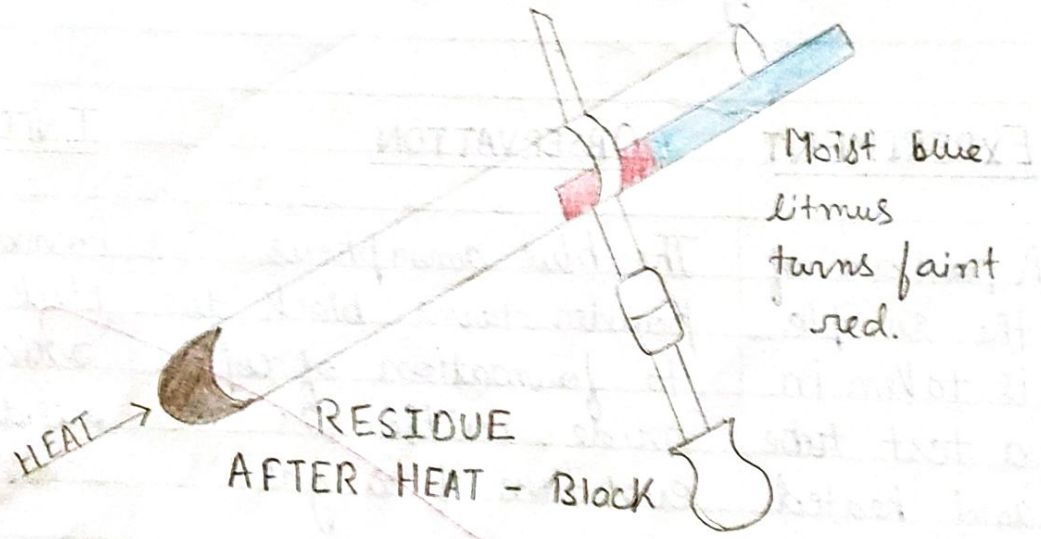
DRY TEST TUBE HEATING OF COPPER CARBONATE [$CuCO_3$]

Sample supplied is blue powder.

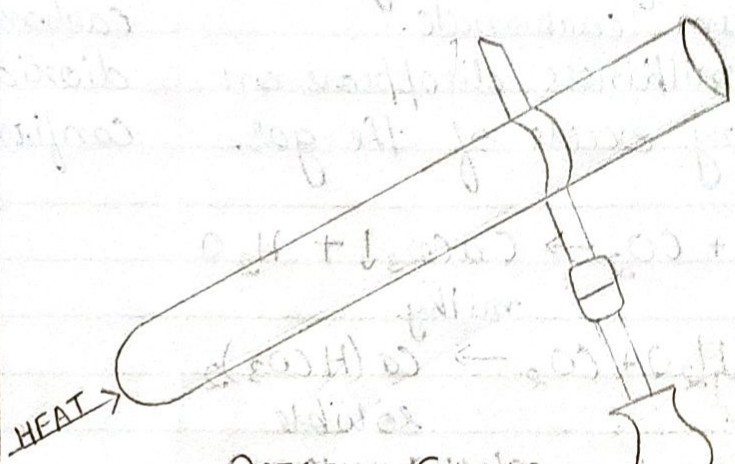
PHYSICAL CHARACTERISTICS.

- Colour - Blue
- Amorphous
- Odour - Odourless
- Solubility - Soluble in water.

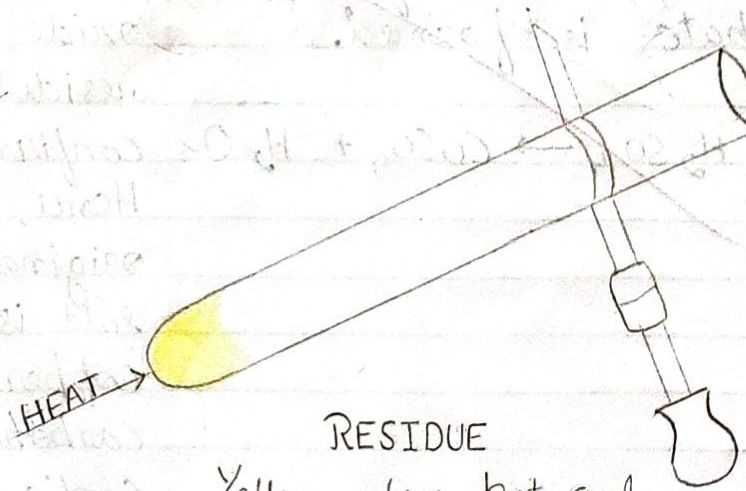
EXPERIMENT	OBSERVATION	INFERENCE
1. A portion of the sample is taken in a test tube and heated first gently and then strongly.	The blue amorphous powder turns black due to formation of copper oxide with the evolution of a gas.	Formation of black copper oxide as residue.


Moist blue
litmus
turns faint
red.
HEAT
RESIDUE
AFTER HEAT - Black

2. The gas is passed through lime water and the burning splinter is introduced.	a) Lime water turns milky due to formation of calcium carbonate. b) The milkiness disappears on passing excess of the gas. $Ca(OH)_2 + CO_2 \rightarrow \underset{\text{milky.}}{CaCO_3\downarrow} + H_2O$ $CaCO_3 + H_2O + CO_2 \rightarrow \underset{\text{soluble}}{Ca(HCO_3)_2}$ c) The burning splinter is put off.	The gas evolved is carbon-dioxide confirmed.
3. Dilute sulphuric acid is added to the black residue and boiled gently.	A blue solution of copper sulphate is formed. $CuO + H_2SO_4 \rightarrow CuSO_4 + H_2O$ black due to Cu^{+2} ion.	Black copper oxide as residue is confirmed. Hence, the original salt is copper carbonate. Confirmed.



ORIGINAL COLOUR
White



RESIDUE
Yellow when hot and
white when cold

EXPT No. 15

DATE: 29/04/19

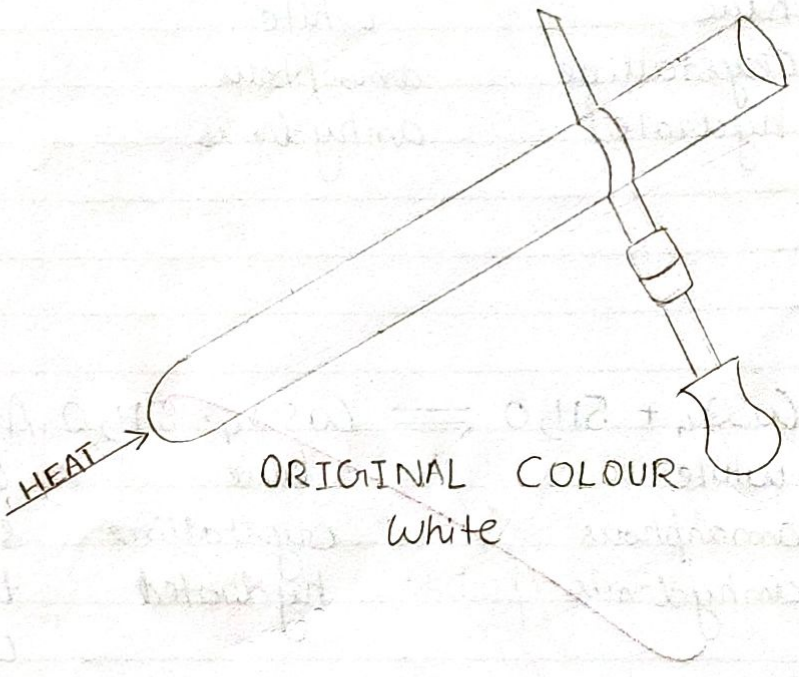
DRY TEST TUBE HEATING OF ZINC CARBONATE [$ZnCO_3$]

The sample supplied is white zinc carbonate powder.

PHYSICAL CHARACTERISTICS

- Colour - White
- Powder
- Odour - Odourless
- Solubility - Insoluble in water.

EXPERIMENT	OBSERVATION	INFERENCE
A portion of sample is taken in a test tube and heated gently then strongly.	The white powder forms a residue which is yellow when hot and white when cold, with the evolution of colourless, odourless gas. $ZnCO_3 \rightarrow ZnO + CO_2$ (Yellow when hot and white when cold)	The residue formed is Zinc oxide
The gas is passed through lime water and a burning splinter is introduced.	Lime water turns milky due to formation of $CaCO_3$. The milkiness disappears on passing excess of gas. $Ca(OH)_2 + CO_2 \rightarrow CaCO_3\downarrow$ (milky) $+ H_2O$ $CaCO_3 + H_2O + CO_2 \rightarrow Ca(HCO_3)_2$ (soluble)	The gas evolved is CO_2 confirmed
	A burning splinter is put off.	The white powder is $ZnCO_3$ confirmed.


HEAT
ORIGINAL COLOUR
White

EXPT NO: 16

DATE : 29/04/19

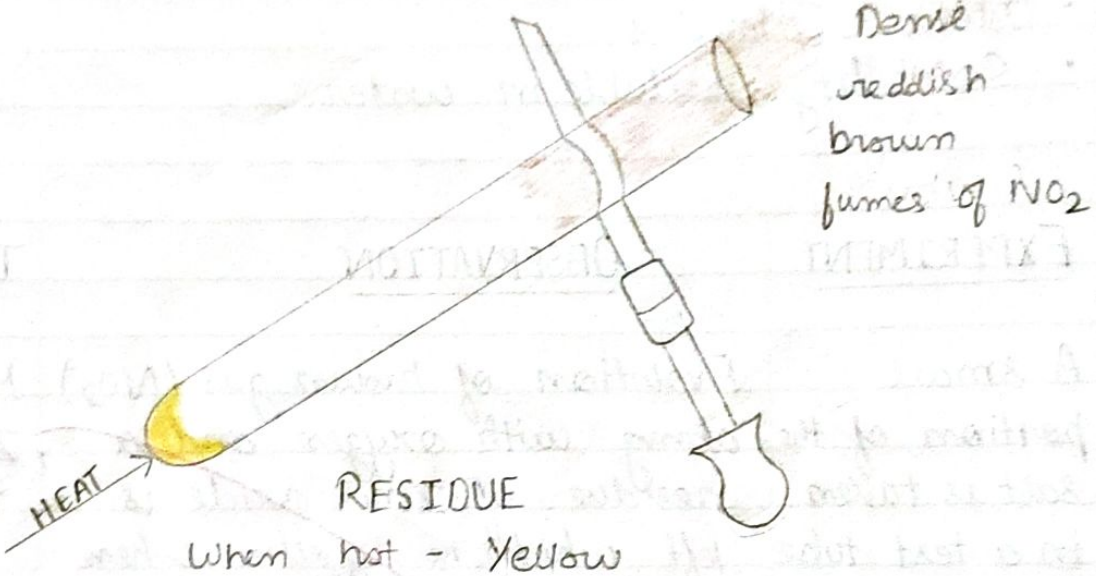
DRY TEST TUBE HEATING OF ZINC NITRATE [$Zn(NO_3)_2$]

The salt supplied is a white crystalline compound.

PHYSICAL CHARACTERISTICS

- Colour : White
- Crystalline
- Odour : Odourless
- Solubility : Soluble in water.

EXPERIMENT	OBSERVATION	INFERENCE
1. A small portion of the salt is taken in a test tube and is first heated gently and then strongly.	Evolution of brown gas (NO_2) along with oxygen and a residue of zinc oxide is left which is yellow when hot and white when cold. $2Zn(NO_3)_2 \xrightarrow{\Delta} 2ZnO + 4NO_2 + O_2$ (yellow when hot and white when cold)	May be Zinc nitrate.



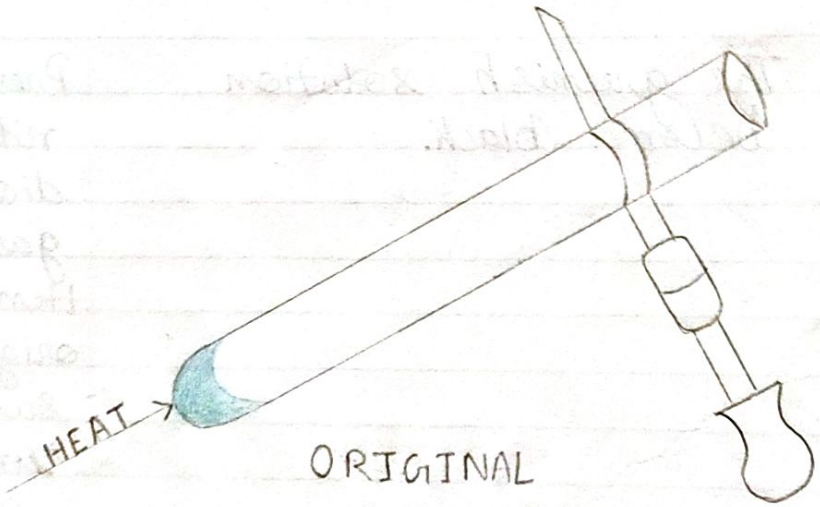
RESIDUE

When hot - Yellow

which turns to White

when cold

2. A glowing splinter (glowing matchstick) is introduced.	The glowing splinter glows brightly.	Presence of oxygen.
3. The reddish brown gas is passed through freshly prepared acidified ferrous sulphate solution.	The greenish solution becomes black.	Presence of nitrogen dioxide gas (NO_2). Hence, the original salt is zinc nitrate. [$Zn(NO_3)_2$]



ORIGINAL
COLOUR
- Blue (Crystalline)

EXPT NO: 17

DATE : 28/04/20

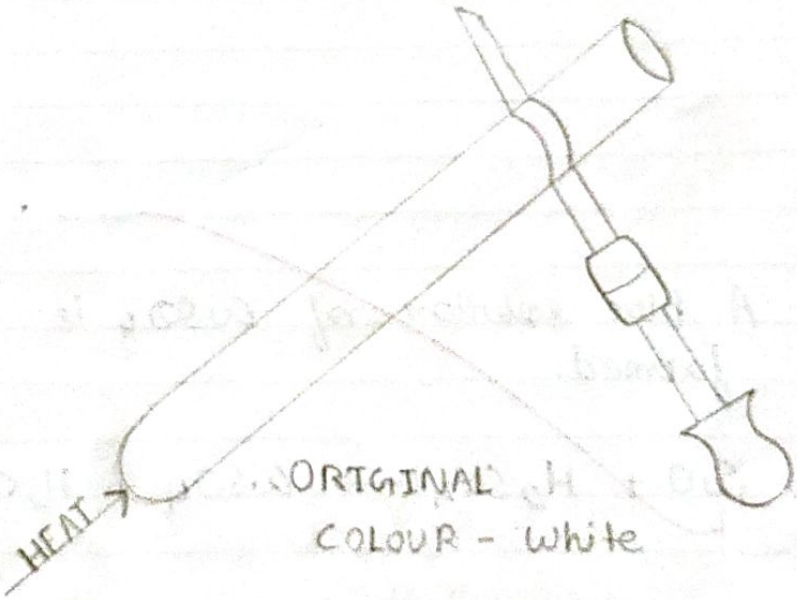
DRY TEST TUBE HEATING OF COPPER NITRATE [$Cu(NO_3)_2$]

The sample is blue crystalline salt of copper nitrate.

PHYSICAL CHARACTERISTICS

- Colour : Blue
- Odour : Odourless
- Crystalline
- Hydrated
- Solubility : soluble in water.

EXPERIMENT	OBSERVATION	INFERENCE
A portion of the sample is taken in a test tube and is heated first gently and then strongly	The salt gives out water droplets that condenses on the cooler parts of the test tube. The salt forms a black residue on heating with the evolution of a reddish brown gas. A colourless gas is evolved which relights a glowing splinter. $2Cu(NO_3)_2 \xrightarrow{\Delta} 2CuO + 4NO_2 + O_2$	Presence of O_2.


HEAT
ORTGINAL
COLOUR - White

EXPT No: 18

DATE : 29/04/19

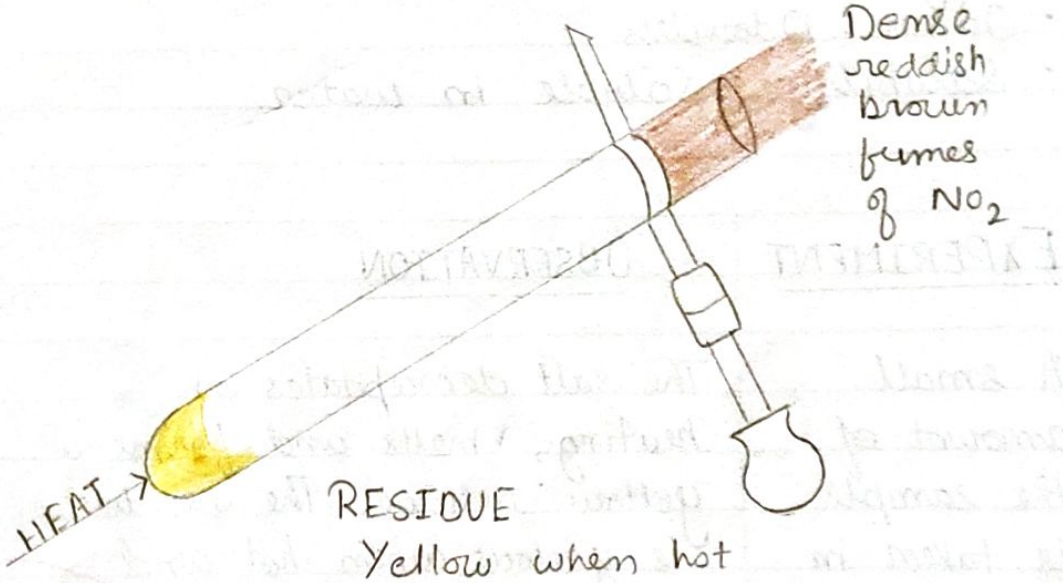
DRY TEST TUBE HEATING OF LEAD NITRATE [$Pb(NO_3)_2$]

The sample supplied is a white crystalline solid of lead nitrate.

PHYSICAL CHARACTERISTICS

- Colour : White
- Crystalline
- Odour : Odourless
- Solubility : Soluble in water

EXPERIMENT	OBSERVATION	INFERENCE
A small amount of the sample is taken in a test tube and heated first gently and then strongly.	The salt decrepitates on heating, melts and forms a yellow residue. The residue is yellow when hot and cold.	The residue is PbO.
	$2Pb(NO_3)_2 \xrightarrow{\Delta} 2PbO + 4NO_2 + O_2$ (yellow when hot and cold)	
	A colourless, odourless gas is evolved which rekindles a glowing splinter.	
	Evolution of a reddish brown gas	


Dense reddish brown fumes of NO_2
HEAT
RESIDUE
Yellow when hot and white when cold

The gas is passed through acidified $FeSO_4$ solution.	The green solution turns black.	NO_2 gas is present. Sample is $Pb(NO_3)_2$ confirmed.

Expt No:- 19

IDENTIFICATION OF DILUTE ACID

EXPERIMENT	OBSERVATION	INFERENCE
The sample was taken in a test tube and blue litmus paper was dipped into it	Blue litmus turns red	Sample solution is acidic in nature
The sample solution was taken in a test tube and Zinc metal was added	Evolution of colourless and odourless gas which extinguishes a burning splinter with a pop sound	Gas is hydrogen and the sample solution is of a dil acid
Sample solution was taken in a test tube and Zinc carbonate was added to it	Colourless odourless gas evolved which turned lime water milky	Gas is carbon dioxide and sample solution is of dil acid

Expt No: 20

IDENTIFICATION OF DILUTE ALKALI

EXPERIMENT	OBSERVATION	INFERENCE
The sample solution was taken in a test tube and red litmus paper was dipped into it	Red litmus turned blue	Sample solution is basic in nature
Sample solution was taken in a test tube and ammonium chloride was added	Colourless gas is evolved which has pungent smell which turns Nessler's reagent brown	Gas is ammonia and the sample solution is an alkali