

Chemistry Experiments to be written in Chemistry Practical File

Chemistry Practical File (Nova ICSE Chemistry-Lab Manual)

Students of Class IX as per the requirement of CISCE (ICSE Board), have to make a Practical File in the Subject of Chemistry.

Instructions to be followed for writing experiments:

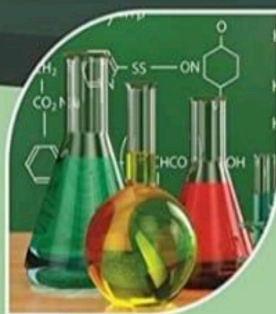
1. On the ruled lined pages: Write the experiment number (as given in the list of experiments to be performed for Session 2021-22); Aim of the experiment; Requirements, Procedure, Observations, Conclusions, Precautions (if any). All these details are described by the publisher (of the Practical File) in the beginning of the file.
2. On the blank pages: Draw the diagram/s or table (if any) related to the experiments. Make use of the pencil only for making the diagrams.
3. New experiment will start from a new page.
4. Do not use any other colour pen in the 'Practical File' except blue pen. You may write headings using black pen.
5. For reference a sample 'Practical File' made by a student is being attached with.

CHEMISTRY PRACTICALS - IX

As per the guidelines from the Council (ICSE), the students of Class IX are required to perform following experiments for the session 2021-22.

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|----------------|------------------------------------|
| Expt-1. | To identify ammonia gas. |
| Expt-2. | To identify carbon dioxide gas. |
| Expt-3. | To identify chlorine gas. |
| Expt-4. | To identify hydrogen gas. |
| Expt-5. | To identify hydrogen sulphide gas. |
| Expt-6. | To identify nitrogen dioxide gas. |
| Expt-7. | To identify sulphur oxide. |
| Expt-8. | To identify water vapour. |
| Expt-9. | To identify oxygen gas. |

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Experiment - 1

Aim To identify ammonia gas

Apparatus :- Test tubes, test tube holder, bunsen burner, Glass rod.

Chemical Required :-

Ammonia salts, alkali, metal nitrides, hot water, red and blue litmus paper, HCl.

Experiment - 1

Aim :- To identify ammonia gas.

Apparatus :- Test tubes, test tube holder, bunsen burner, glass rod.

OBSERVATION TABLE

EXPERIMENT	OBSERVATION	INFERENCE
Ammonia (NH_3) It is liberated	(i) It is colourless gas having typical pungent smell	Ammonia gas
(a) by heating ammonium salts with alkaline (b) by treating metal nitrides with hot water	(ii) It turns moist red litmus blue (iii) It gives dense white fumes when a glass rod dipped in HCl and is brought to it.	

Experiment - 2

Aim :- To identify carbon dioxide gas.

Apparatus :- Test tubes, test tube holder, bunsen burner,
Glass rod

Chemical Required :- Metal carbonates, metal bicarbonates,
dilute sulphuric acid, dilute hydro-
chloric acid, lime water, litmus paper.

Experiment - 2

Aim:- To identify carbon dioxide gas.

Apparatus:- Test tubes, test tube holder, bunsen burner, Glass rod.

OBSERVATION TABLE

EXPERIMENT	OBSERVATION	INFERENCE
Carbon dioxide gas. It is liberated (a) By strongly heating metal carbonates except Na_2CO_3 & K_2CO_3 (b) by strongly heating metal HCO_3 (c) by the action of dil HCl or dil H_2SO_4 on metal CO_3 & HCO_3	(i) It is colourless & odourless gas (ii) It turns moist blue litmus red (iii) It extinguishes a glowing wooden splinter (iv) It turns freshly prepared lime water milky.	Carbon dioxide gas.

Experiment - 3

Aim :- To identify chlorine gas.

Apparatus :- Test tubes, test tube holder, glass rod, bunsen burner

Chemical Required :-

MnO_2 , PbO_2 , Pb_3O_4 , $KMnO_4$, $K_2Cr_2O_7$

Experiment - 3

Aim:- To identify chlorine gas.

Apparatus:- Test tubes, test tube holder, glass rods, bunsen burner.

OBSERVATION TABLE

EXPERIMENT	OBSERVATION	INFERENCE
<p>Chlorine (Cl_2)</p> <p>(i) It is liberated by heating MnO_2, PbO_2, Pb_3O_4, KMnO_4 or $\text{K}_2\text{Cr}_2\text{O}_7$ with conc. HCl</p> <p>(ii) By the action of bleaching powder without H_2SO_4 or dil. HCl</p>	<p>(i) It is a greenish yellow gas having pungent irritating smell.</p> <p>(ii) It turns moist blue litmus paper red and bleaches it.</p> <p>(iii) It turns moist starch iodine paper blue black</p>	<p>Chlorine gas.</p>

Experiment - 4

Aim :- To identify hydrogen gas

Apparatus :- Test tubes, test tube holder, glass rod, bunsen burner

Chemical Required :- Zinc, magnesium, dilute HCl, dilute H_2SO_4 , litmus paper

Experiment - 4

Aim: To identify hydrogen gas

Apparatus: Test tubes, test tube holder, glass rod, bunsen burner.

OBSERVATION TABLE

EXPERIMENT	OBSERVATION	INFERENCE
Hydrogen (H_2) It is liberated by the action of active metals like Zinc, magne- -sium with dil. HCl or dil. H_2SO_4	(i) It is colourless, odourless gas (ii) It is neutral towards litmus (iii) When burning wooden splinter is brought near it, it extinguishes with a pop sound.	Hydrogen gas

Experiment - 5

Aim :- To identify hydrogen sulphide gas.

Apparatus :- Test tubes, test tube holder, glass rod.

Chemical Required :- dilute HCl, dilute H_2SO_4 , metal sulphides, litmus paper, lead acetate paper.

Experiment - 5

Aim:- To identify hydrogen sulphide gas.

Apparatus:- Test tube, test tube holder, glass rod.

OBSERVATION TABLE

EXPERIMENT	OBSERVATION	INFERENCE
Hydrogen sulphide (H_2S) It is liberated by the action of dil. HCl or dil. H_2SO_4 on metal sulphides.	(i) It is colourless, odourless gas having smell like that of rotten eggs. (ii) It turns moist blue litmus paper red.	Hydrogen Sulphide gas.

Experiment - 6

Aim :- To identify nitrogen dioxide gas.

Apparatus :- Test tubes, test tube holder, glass rod, bunsen burner.

Chemical Required :- Concentrated H_2SO_4 , metal nitrates, litmus paper, potassium iodine paper.

Experiment - 6

Aim: To identify nitrogen dioxide gas.

Apparatus: Test tubes, Test tube holder, bunsen burner, glass rod.

OBSERVATION TABLE

EXPERIMENT	OBSERVATION	INFERENCE
<p>Nitrogen dioxide (NO_2)</p> <p>It is liberated:-</p> <p>(i) by heating metal nitrates (except KNO_3 & NaNO_3)</p> <p>(ii) by heating metal nitrates with H_2SO_4</p>	<p>(i) It is reddish brown gas having pungent irritating smell</p> <p>(ii) It turns moist blue paper red</p> <p>(iii) It turns moist potassium iodine paper brown.</p>	<p>Nitrogen dioxide gas</p>

Experiment - 7

Aim :- To identify sulphur dioxide gas.

Apparatus :- Test tubes, test tube holder, bunsen burner, glass rod.

Chemical Required :- metal sulphites, metal hydrogen sulphites, dilute HCl, dilute H_2SO_4 , acidified $KMnO_4$, acidified potassium dichromate solution, litmus paper

Experiment - 7

Aim:- To identify sulphur dioxide gas.

Apparatus:- Test tubes, test tube holder, bunsen burner, glass rod.

OBSERVATION TABLE

EXPERIMENT	OBSERVATION	INFERENCE
<p>Sulphur dioxide (SO_2)</p> <p>(i) by heating metal sulphite except Na_2SO_3 & K_2SO_3</p> <p>(ii) by heating metal hydrogen sulphites</p> <p>(iii) by the action of metal sulphites or metal hydrogen sulphites with dil. HCl or dil. H_2SO_4</p>	<p>(i) It is colourless, odourless gas having pungent suffocating smell that of burning sulphur.</p> <p>(ii) It turns moist blue litmus paper red.</p> <p>(iii) It extinguishes a glowing splinter.</p> <p>(iv) It decolorises acidified $KMnO_4$</p> <p>(v) It turns acidified potassium dichromate solution from orange to green</p>	<p>Sulphur dioxide gas.</p>

Experiment - 8

Aim :- To identify water vapour.

Apparatus :- Test tubes, test tube holder, glass rod, bunsen burner

Chemical Required :- Copper sulphate, water, sodium hydroxide, potassium hydroxide.

Experiment - 8

Aim:- To identify water vapour.

Apparatus:- Test tubes, test tube holder, glass rod, bunsen burner

OBSERVATION TABLE

EXPERIMENT	OBSERVATION	INFERENCE
<p>Water Vapour.</p> <p>It is liberated:-</p> <p>(i) hydrated salts like $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$</p> <p>(ii) metal hydroxide except NaOH & KOH.</p> <p>(iii) metal hydrogen carbonates or metal hydrogen sulphides</p>	<p>(i) It is colourless or colourless gas or vapour</p> <p>(ii) It is neutral towards litmus</p> <p>(iii) It turns white anhydrous copper sulphate blue.</p> <p>(iv) It turns blue cobalt chloride paper pink.</p> <p>(v) Colourless liquid condenses on cooler sides of test tubes.</p>	<p>H_2O vapours.</p>

Experiment - 9

Aim :- To identify oxygen gas

Apparatus :- Test tube, test tube holder, bunsen burner, glass rod.

Chemical Required :- Potassium chlorate, potassium dichromate, potassium permanganates, lead chloride,

Experiment - 9

Aim: To identify oxygen gas

Apparatus: Test tubes, test tube holder, bunsen burner, glass rod.

OBSERVATION TABLE

EXPERIMENT	OBSERVATION	INFERENCE
<p>Oxygen (O_2) It is liberated:-</p> <p>(i) metal nitrates like $Pb(NO_3)_2$</p> <p>(ii) metal oxides like HgO, PbO_2, Pb_3O_4 etc.</p> <p>(iii) oxy salts like potassium chlorate, potassium dichromate, potassium permanganate etc.</p>	<p>(i) It is colourless, odourless gas.</p> <p>(ii) It is neutral towards litmus</p> <p>(iii) It rekindles a glowing wooden splinter</p>	<p>Oxygen gas (O_2)</p>