SHRI VENKATESHWARA COLLEGE OF PHARMACY

ARIYUR, PUDUCHERRY

PHARMACEUTICAL

INORGANIC CHEMSITRY

I SEMESTER - B.PHARM

PRACTICAL LAB MANUAL

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EXP.NO.01	
DATE:	

LIMIT TEST FOR CHLORIDE

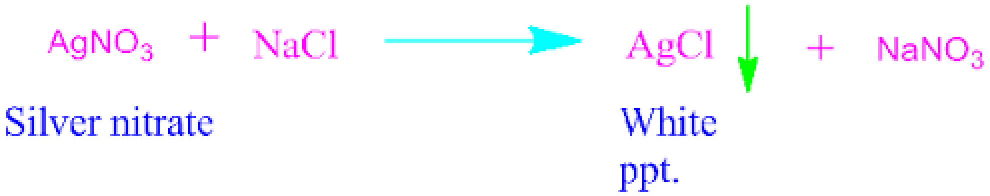
AIM:

To determine whether the given sample complies with the limit test for chloride with respective I.P standard.

PRINCIPLE:

The test is based on the precipitation of chloride as sodium chloride(impurity) on interaction with silver nitrate (AgNO3) in the presence of dilute HNO3. Comparison of the opalescence of the solution. So obtained with standard opalescence obtained from a known volume of chloride ions.

Acidic condition of the test prevents the precipitation of other acid radical such as phosphate, sulphate etc., as silver salts. The acidity of the test and the standard solution should remain comparable. The test solution in the monograph of the substance. Attention should be paid to the substance which reacts with HNO3.



PROCEDURE:

Take 2 Nessler's cylinder mark one as test and other as standard.

TEST	STANDARD
Specific weight of compound for a test sample is dissolved in water or solutions. It is prepared as directed in the pharmacopeia and transfer into Nessler's cylinder.	Take 1 ml of 0.05845% w/v solution of Nacl cylinder.
Add 10 ml of dilute HNO3	Add 10 ml of dilute HNO3
Make up to 50 ml by using distilled water.	Make up to 50 ml by using distilled water
Add I ml of 0.1 M of AgNO3 stir properly and keep aside for 5 minutes.	Add 1 ml of 0.1 M of AgNO3stir properly and keep aside for 5 minutes
Observe the opalescence	Observe the opalescence.

OBSERVATION:

Compare the opalescence of the test with standard by viewing against black background. Aopalescence produced in the test solution is less than or more than that of the standard solution.

CONCLUSION:

The opalescence produced in the test solution is less than the standard solution. The sample will pass the limit test for chloride and vice-versa.

REPORT:

EXP.NO.02

DATE:

LIMIT TEST FOR SULPHATE

AIM:

To perform the limit test for sulphate for the given sample and report on its standard.

PRINCIPLE:

The limit test for sulphate is based on the reaction between sulphate and Barium chloride in presence of dilute hydrochloric acid or dilute acetic acid. The turbidity produced in the standard containing a known quantity of sulphate.

Barium sulphate reagent contains barium chloride, sulphate free from alcohol under small quantity of potassium sulphate it is used as a reagent and is made insitu.The inclusion of small quantity of potassium sulphate in reagent for impress sensitivity of the test. Barium chloride acts as a seeding agent for the precipitation of barium sulphate. If a sulphate is present in the substance alcohol prevents super saturation used a more uniform turbidity develops. In the test solution passes the test if the turbidity produced is not more intense than the turbidity produced in the standard if the turbidity in the test is greater in intensity it fails the test.

$$K_2SO_4 + BaCl_2 \xrightarrow{\text{Acetic acid}} BaSO_4\downarrow + 2KCl$$

$$SO_4^{2-} + BaCl_2 \xrightarrow{\text{Acetic acid}} BaSO_4\downarrow + 2Cl^-$$

PROCEDURE:

Take 2 Nessler’s cylinder and mark one as test and other as standard.

TEST	STANDARD
Dissolve the specified quantity of the substance in 10 ml of distilled water or prepare the solution as per the direction of I.P.	Pipette out 2 ml of standard sulphate solution (0.181% of w/v) of potassium sulphate in a Nessler’s cylinder.
Add 2 ml of dilute hydrochloric acid.	Add 2 ml of dilute hydrochloric acid.
Add 5 ml of barium sulphate reagent.	Add 5ml of barium sulphate reagent.
Add sufficient distilled water to produce 50ml	Add sufficient distilled water to produce 50ml.

Stir immediately with the glass rod and allowed to stand for 5 minutes.	Stir immediately with the glass rod and allowed to stand for 5 minutes.
Observe the intensity.	Observe the intensity.

OBSERVATION:

Compare the intensity of the test with the standard by viewing against a black background. The intensity of test solution is less than or more than that of the standard solution.

CONCLUSION:

If turbidity produced in the test solution is less than the standard solution than the sample will pass the limit test for sulphate and vice-versa.

REPORT:

EXP.NO.03

DATE:

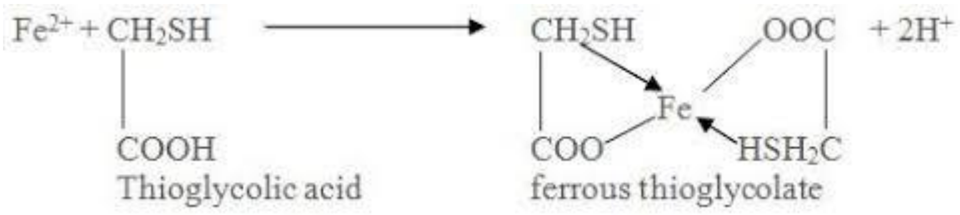
LIMIT TEST FOR IRON

AIM:

To perform the limit test for iron for the test sample and report on the standard.

PRINCIPLE:

The limit test for iron depends upon the reaction of iron (Fe^{2+} or $Fe^{3+)}$ with of thioglycolic acid in the presence of acetic acid and ammonia of pale pink to deep reddish purple the color produce is due to formation of ferrous thioglycolate which is the co-ordination compound. This complex is stable in the absence of an acid when exposed to air due to oxidation. Ferrous thioglycolic in colorless in acid on neutral medium. The color develops only in the presence of alkali.



THIOGLYCOLIC ACID:

Reducing agent and reduce ferric ion to ferrous ion to form.

CITRIC ACID:

It forms a complex with iron and prevents its precipitation.

AMMONIA:

The color develops only in the presence of alkali.

PROCEDURE:

Take 2 50ml Nessler’s cylinder and label one as test and other as standard.

TEST	STANDARD
Dissolve the specified quantity of substance in 40ml of distilled water.	Dilute 2ml of standard ion solution(0.1726% w/v) solution of ferric ammonia sulphate with 40ml of distilled water in nessler's cylinder.
Add 2ml of 20% w/v solution of iron free citric acid.	Add 2ml of 20%w/v solution of iron free citric acid.
Add 0.1 ml of thioglycolic acid and mix well .	Add 0.1 ml of thioglycolic acid and mix well.
Make alkaline with iron free ammonia solution.	Make alkaline with iron free ammonia solution.
Make up the volume to 50ml by using distilled water stir well and allow to stand for 5 minutes.	Make up the volume to 50ml by using distilled water stir well and allow to stand for 5 minutes.

OBSERVATION:

After the 5 minutes compare the intensity of color produced in the test with standard and report the purity of sample.

If the intensity of the color produced in the test is not more intense than the standard than the sample will passes the limit test for iron. If the color in the test is more intense than the standard then the sample fails the limit test for iron.

CONCLUSION:

The color produced in the test is less intense then the standard. So, the sample passes limit test for iron and vice versa

REPORT:

EXP.NO.04

DATE:

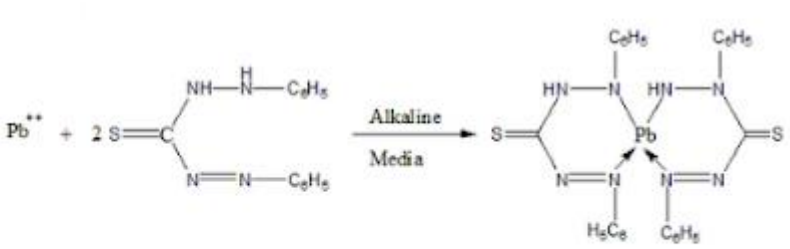
LIMIT TEST FOR LEAD

AIM:

To perform the limit test for lead for the given sample and report.

PRINCIPLE:

The principle involve with the limit test for lead is based upon the reaction between lead and dithizone (diphenyl thiocarpozone) forms a complex lead dithizonate. Dithizone dissolve in chloroform and the solution is green in colour. It has the ability to extract lead as a complex from substance containing lead as an impurity. If the substance is dissolved in water and made alkaline.



PROCEDURE:

1. Transfer the volume of prepared sample directed in the monograph to a separate. Add 6 ml of ammonium citrate solution, 2 ml of potassium cyanide solution, 2 ml of hydroxyl ammine, hydrochloride solution.

2. Add 2 drops of phenol red solution and make the solution just alkaline by the addition of NH3 solution.

3. Immediately, extract the solution with the 5 ml of diphenyl thiocarpozone draining off each extract into another separating funnel until diphenyl thiocarpozone solution in green.

4. Shake the combined diphenyl thiocarpazone solution.

5. For 30 seconds with 30 ml of 1%, HNO acid and discard the chloroform layer.

6. Add the acid solution exactly 5ml of standard diphenyl thiocarpazone solution and 40 ml of ammonium cyanide solution and shake for 30 seconds.

7. Thecolour of chloroform layer is of no deeper shade of violet than that of standard. Made with volume of lead solution.Equivalent to the amount of lead permitted in the sample under examination.

EXP.NO.05

DATE:

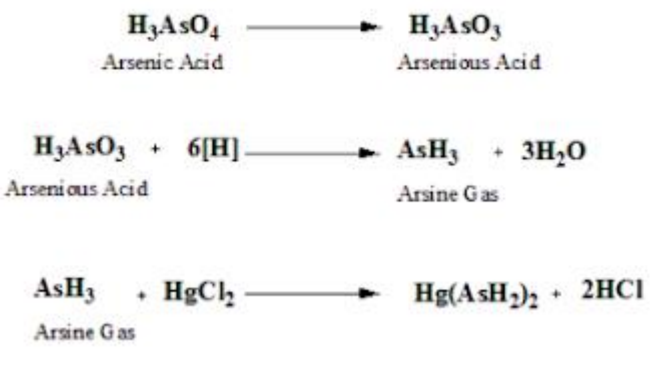
LIMIT TEST FOR ARSENIC

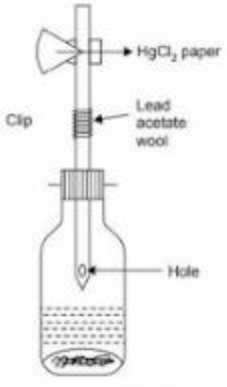
AIM:

To perform the test for arsenic for the given sample and report on its standard.

PRINCIPLE:

The principle involved in the limit test for arsenic is based on the reduction of a compound to gaseous arsenous hydride or arsenic (AsH_3) by nascent H_2. The reduction is achieved by using zinc and dilute hydrochloric acid. The substances absorbed in hydrochloric acid, the arsenous present in substance is converted to either arsenous acid (if the arsenic is trivalent) or arsenic acid (if the arsenic is pentavalent) then it is further treated with reducing agent such as stannous chloride, all the arsenic acid is reduced to arsenous acid. The arsenious acid is reduced to arsenic (arsenous hydroxide) by nascent hydrogen which the action of granulated zinc or hydrochloric acid when the arsine gas comes into contact with dry paper saturated with mercuric chloride. If produce yellow or brown stain. The intensity is similarly or simultaneously prepared by taking a specified quantity of dilute arsenic solution in the place of test substance. If the test stain is less than intensity than the standard stain the sample passes the limit test for arsenic.





PROCEDURE:

Take 2 (120ml) wide mouth bottle with the attachment and label one as test and other as standard.

TEST	STANDARD
Weigh accurately 10g of sample and dissolve in 50 ml of distilled water and it is transferred into the bottle.	Take 1 ml of arsenic standard solution is the bottle and add 50 ml of distilled water.
Add 10 ml of stannous hydrochloric acid.	Add 10 ml of stannous hydrochloric acid.
Add 5 ml of 1 M of KI and 10g of zinc.	Add 5 ml of 1 M of KI and 10g of zinc.
Place the cork immediately over the bottle into the attachment and immersed in bottle in water bath at suitable temperature.	Place the cork immediately over the bottle into the attachment and immersed in bottle in water bath at suitable temperature.
Allow the reaction to go on for 40 minutes.	Allow the reaction to go on for 40 minutes.
Remove the mercury chloride paper at the end of 40 minutes and compare the stain produced in the paper.	Remove the mercury chloride paper at the end of 40 minutes and compare the stain produced in the paper.

OBSERVATION:

Compare the depth of color in the test stain with the standard stain and report either one of the following.

If the test stain is not more intense than standard stain the sample passes the limit test for arsenic it is declared as standard.

REPORT:

TEST FOR PURITY

These are test for specific impurity which may be present in a drug due to various reasons by these test, we can find out whether the impurities present are within the limit permitted or not in addition to specific test for impurities, non-specific test such as distillation range, weight /ml, specific gravity etc. also may be performed.

The specified test for impurities are limit test. Swelling lower of bentonite and neutralizing capacity of aluminum hydroxide gel.

EXP.NO.06

DATE:

DETERMINATION OF SWELLING POWDER OF BENTONITE

AIM:

To determine the swelling powder of bentonite and report on its standard.

PRINCIPLE:

When water is added to bentonite each particle of bentonite is surrounded by layer or shell of water. This produce a particle several time larger than original particle. Swelling of mass results. Bentonite can absorb upto 5 times its weight of water and its bulk may impresses 12-15 times. Bentonite is insoluble in water. But, swell into a homogenous mass. To find out the swelling power of the sample is added in a small quantity at a interval of 2 min to a solution of soldiumlaurryl chloride in a 100 ml measuring cylinder.

It is allowed to stand for 2 hours the apparent volume of sediment not less than 24ml. The presence of wetting agent (sodium laurryl chloride) promote compatibility it provide insoluble bentonite between water.

PROCEDURE:

1. Dissolve 1 g of sodium laurryl chloride in 100 ml of water and transfer to a 100 ml of graduate measuring cylinder having a diameter of 3 mm.
2. Weigh accurately 2g of bentonite and its small quantity every 2 minutes to avoid solution allow each position to settle.
3. Set aside for 2 hours.
4. Find out the apparent volume of the sediments at the bottom of the cylinder.
5. The apparent volume of sediment is 24 ml or move. The sample passes limit test otherwise it fails.

REPORT:

EXP.NO.07 DATE:	**DETERMINATION OF PRESENCE OF POTASSIUM IODATE AND IODINE IN POTASSIUM IODIDE**

AIM:

To determine the presence of potassium iodate and iodine in potassium iodide.

PRINCIPLE:

Iodate in potassium iodide is tested by adding dilute sulphuric acid and starch solution to an aqueous solution of sample. No blue color should be produced iodate is present react with potassium iodide in presence of acid and liberate iodine which gives blue color which starch.

PROCEDURE:

Weigh 0.5g of sample and dissolve in 10 ml of CO_2 free water (in a boiling tube CO_2 free water is prepared by boiling, distilled or purified water and cool it.) The container should be closed during boiling add 0.15 ml of dilute sulphuric acid and 1 drop of iodide free starch solution (for preparing iodide starch free solution a glass martle, 1 g of soluble starch, 5ml of distilled water and stir continuously and make up to 100 ml with boiling water. Prepare immediately before use. If no blue color is produced within 2 minutes the sample passes the test. If the blue color is produced the sample fails the test.

REPORT:

EXP.NO.08

DATE:

DETERMINATION OF ACID NEUTRALIZING CAPACITY OF ALUMINIUM HYDROXIDE GEL

AIM:

To determine the acid neutralizing capacity of aluminium hydroxide.

PRINCIPLE:

Aluminium hydroxide reacts with hydrochloric acid to form aluminium chloride. This means aluminium hydroxide can acts as an good antacid and will able to neutralize the acid in stomach.

Neutralizing capacity is determined by allow the get to remain in contact with 0.1 M hydrochloric acid at 37^0c in a thermostatically controlled bar and measuring the PH at a successive time intervals. Finally, the acid is increased further and the neutralizing capacity of gel is found out by determining the excess of acid by titration with 0.1 M hydrochloric acid after 1 hour.

PROCEDURE:

1. Take 100 ml of water in, 250 ml beaker and add 5g of sample to it.
2. Place the beaker in a thermostatic waterbath and adjust to get 37 ^{0}C in suspension.
3. Add 100 ml of 0.1 M of hydrochloric acid previously heated to 37 ^{0}C.
4. Stir continuously by maintaining the temperature at 37 ^{0}C.
5. Measure PH of solution at 37 ^{0}C with the help of PH meter after 10, 15 and 20 minutes and record the same.
6. In PH should not be report than 1.8 after 10 minutes and 2.3 after 15 minutes, 3 after 20 minutes. The PH at any time should not be more than 5.5.
7. Add 10 ml of hydrochloric acid previously heated to 37 ^{0}C.
8. Stir continuously for 1 hour by maintaining the temperature at 37 ^{0}C.
9. Titrate with 0.1 M of sodium hydroxide.
10. This is a potentiometry titration so the titrate of the PH of 3.5 is obtained.
11. 0.1 M of sodium hydroxide required should not be more than 50 ml. The sample passes the test. If it is more than 50ml the sample does not passes the test.

REPORT:

EXP.NO.09

DATE:

IDENTIFICATION TEST FOR FERROUS SULPHATE

AIM:

To perform identification test for Ferrous Sulphate.

MOLECULAR FORMULA:

$FeSO_4.7H_2O$

DESCRIPTION:

It is hematinic compound,availableas transparent green crystal or bluish green crystalline powder. It is efflorescent in dry air and on exposure to moisture air, the crystals rapidly oxidized & became coated with brown color. It is soluble in water but insoluble in ethanol.

IDENTIFICATION TEST:

Identification tests are performed on the basis of presence of Ferrous salts and Sulphate.

TEST FOR FERROUS SALTS:

EXPERIMENT	OBSERVATION	INFERENCE
Take 1ml of ferrous sulphate solution, add 1 ml of potassium ferricyanide .	A dark blue precipitate is formed	Presence of Ferrous salt
Take 1 ml of ferroussulphate solution, add 1 ml of sodium hydroxide solution.	A pale green precipitate is formed	Presence of Ferrous salt
Take 5 drops of ferroussulphate solution, add 5 drops of dilute sulphuric acid & mix well. And then add $KMnO_4$ solution.	The pink color of $KMnO_4$ is discharge	Presence of Ferrous salt

TEST FOR SULPHATE:

EXPERIMENT	OBSERVATION	INFERENCE
Take 5 ml of ferrous sulphatesolution, add 1 ml of dilute HCl& 1ml of $BaCl_2$ solution. .	A white precipitate or turbidity appears due to formation of $BaSO_4$	Presence of Sulphate
Add 2 mlof lead acetate solution to 5 ml of ferrous sulphate solution.	A white precipitate is formed	Presence of Sulphate

REPORT:

EXP.NO.10 DATE:	**IDENTIFICATION TEST FOR SODIUM BICARBONATE**

AIM:

To perform identification test for Sodium Bicarbonate.

MOLECULAR FORMULA:

$NaHCO_3$

DESCRIPTION:

It is used as an electrolyte replenisher and systematic alkaliniser. It is the white crystalline powder. It is odorless with saline water. It is soluble in water but insoluble in ethanol.

IDENTIFICATION TEST:

Identification tests are performed on the basis of presence of Sodium salts and Bicarbonates.

TEST FOR SODIUM:

EXPERIMENT	OBSERVATION	INFERENCE
Take 1 ml of salt solution & add 2 ml of K carbonate and heat to boiling, no precipitate is formed. To it add freshly prepared 4 ml of potassium antimonite solution an heat to boiling. Cool it in ice water.	A dense white precipitate is formed	Presence of Sodium
Acidify the solution of substancewith 1N acetic acid & excess of magnesium uranyl acetate solution is added.	A yellow crystalline precipitate is formed	Presence of Sodium

TEST FOR BICARBONATE:

EXPERIMENT	OBSERVATION	INFERENCE
Boil the solution of Sodium bicarbonate	Carbon dioxide is liberated it turns lime water milky	Presence of Bicarbonate
Take 1 ml of Na bicarbonate solution, add 1ml of $MgSO_4$ solution & boil it	white precipitate is obtained due to formation of $MgCO_3$	Presence of Bicarbonate
Add 2 N acetic acid 2ml to a salt solution. Close the tube immediately using a stopper. Heat gently and pass the generated CO_2 gas into 5ml of $Ba(OH)_2$ solution	A white precipitate of $BaCO_3$ appears which is soluble in dilute hydrochloric acid.	Presence of Bicarbonate

REPORT:

EXP.NO.11

DATE:

IDENTIFICATION TEST FOR CALCIUM GLUCONATE

AIM:

To perform identification test for Calcium Gluconate.

MOLECULAR FORMULA:

$C_{12}H_{22}CaO_{14}.H_2O$

DESCRIPTION:

It is used as an electrolyte replenisher. It is an odorless, tasteless, white crystalline powder it is slightly soluble in water, freely soluble in boiling water and insoluble in ethanol.

IDENTIFICATION TEST:

Identification tests are performed on the basis of presence of Calcium and Gluconic acid

TEST FOR CALCIUM:

EXPERIMENT	OBSERVATION	INFERENCE
To a little quantity of calcium gluconate, add few drops of a solution of ammonium oxalate	A white precipitate is formed, which is slightly soluble in dilute acetic acid but soluble in HCl.	Presence of Calcium
Dissolve 20 ml of calcium gluconate solution in minimum quantity of dil.HCl and neutralize with dil.NaOH. Add 5 ml of ammonium carbonate solution	A white precipitate is formed	Presence of Calcium
Dissolve the 20ml of calcium gluconate solution in 1 ml of glacial acetic acid. Add 0.5 ml of Kferrocyanide,the solution remains clear. Add 50 ml	A white precipitate is formed due to formation of a NH_4 calcium ferrocyanide.	Presence of Calcium

NH_4Cl		

TEST FOR GLUCONIC ACID:

EXPERIMENT	OBSERVATION	INFERENCE
Take 1 ml of calcium gluconate, add few drops of ferric chloride solution	A yellow color appears	Presence of Gluconic acid
Take 0.5 gm of salt and dissolve in 5 ml of warm water, add 1ml glacial acetic acid to it and add 1.5 ml of phenylhydrazine. Heat the mixture on a water bath for half an hour and allow to cool.	A white crystalline precipitate is formed	Presence of Gluconic acid

REPORT:

EXP.NO.12	# IDENTIFICATION TEST FOR COPPER SULPHATE
DATE:	

AIM:

To perform identification test for Copper Sulphate

MOLECULAR FORMULA:

$CuSO_4.5H_2O$

DESCRIPTION:

It is used as a potent emetic and astringent. It is considered to be an antidote for phosphorus poisoning. It is blue crystalline granules or powder. It is freely soluble in water, slowly soluble in glycerol and almost insoluble in alcohol.

IDENTIFICATION TEST:

Identification tests are performed on the basis of presence of Copper salts and Sulphate

TEST FOR CALCIUM SALT:

EXPERIMENT	OBSERVATION	INFERENCE
Take 1ml of $CuSO_4$ solution, add few drops of KI solution	A white precipitate is formed & the suspending liquid is blue in color	Presence of Copper
Take 1ml of salt solution & then add few drops of NH_3	A pale blue precipitate is formed which is soluble in excess of NH_3 give a deep blue color.	Presence of Copper
Take 2 ml of $CuSO_4$ solution, add 1ml of K ferricyanide solution	A red-brown precipitate is formed	Presence of Copper

TEST FOR SULPHATE:

EXPERIMENT	OBSERVATION	INFERENCE
Take 5 ml of $CuSO_4$ solution, add 1 ml of dil.HCl solution and add 1 ml of $BaCl_2$ solution	A white precipitate or turbidity appears due to formation of $BaSO_4$	Presence of Sulphate
Add 2 ml of lead acetate solution to 5 ml of $CuSO_4$ solution	A white precipitate is formed	Presence of Sulphate

REPORT:

EXP.NO.13

DATE:

IDENTIFICATION TEST FOR MAGNESIUM HYDROXIDE

AIM:

To perform identification test for Magnesium Hydroxide.

MOLECULAR FORMULA:

$Mg(OH)_2$

DESCRIPTION:

It is used as an antacid (milk of magnesia) as well as laxatives. It is bulky white powder without odour. It is practically insoluble in water and in alcohol but soluble in dilute acids.

IDENTIFICATION TEST:

Identification tests are performed for Magnesium

TEST FOR MAGNESIUM:

EXPERIMENT	OBSERVATION	INFERENCE
Take 2 ml of $Mg(OH)_2$, add 1 ml of dil.NH_3 solution	A white precipitate is formed	Presence of Magnesium
Add 5 drops of sodium phosphate solution to the salt solution	A crystalline white precipitate is formed which is soluble in dilute mineral acid	Presence of Magnesium
Add 3 drops of magneson reagent to the salt solution, mix and introduce 5 drops of NaOH	A blue precipitate is formed	Presence of Magnesium

REPORT:

EXP.NO.14	**PREPARATION OF BORIC ACID**
DATE:	

AIM:

To prepare and submit boric acid from Borax.

PRINCIPLE:

Boric acid is prepared by decomposing borax with a mineral acid like sulphuric acid or hydrochloric acid. Boric acid is allowed to crystalline after filtration crash with water till it is free from soluble sulphate and dried.

CHEMICAL'S REQUIRED:

Borax-2gm

Concenteratedsulphuric acid -1ml

Water-10ml sufficient quantity

PROCEDURE:

1.Dissolve 2 gm of borax in 10 ml of water, heat if necessary to dissolve.

2.Add to the solution about 10 ml of concenteratedsulphuric acid soluble and with constant stirring.

3.Cool and filter, wash the precipitate with water till the filtrate is free from sulphate.

4.Dry the precipitate and report.

USES:

Used as antimicrobial.

REPORT:

EXP.NO.15 DATE:	PREPARATION OF FERROUS SULPHATE

AIM:

To prepare and submit ferrous sulphate from ion.

MOLECULAR FORMULA:

$FeSO_4$

PRINCIPLE:

Ferrous sulphate is prepared by dissolving a slight excess of iron in dilute sulphuric acid and concern breaking to get green crystal.

CATEGORY:

Haematinics

CHEMICAL REQUIRED:

Iron filling – 3g.

Concenteratedsulphuric acid – 5 ml

Water – 25ml.

PROCEDURE:

1. Add about 5 ml of concenteratedsulphuric acid to about 25ml of water.
2. Add about 3g of iron filling to the acid solution with stirring.
3. Can to about 1/4th volume and cool.
4. Filter and dry the crystal and report.

REPORT:

EXP.NO.16

DATE:

PREPARATION OF POTASH ALUM

AIM:

To prepare and submit potash alum from potassium sulphate and aluminium sulphate.

MOLECULAR FORMULA:

KAl (SO_4).$12H_2O$.

CATEGORY: Astringent.

PRINCIPLE:

Alum is a double salt of univalent and trivalent ion with 12 molecules of water. There are different alum, they include potash alum, ammonium alum, sodium alum, is most common alum used and has a quick range of application. It is prepared by the reaction of KSO_4 with Al_2SO_4.

CHEMICAL'S REQUIRED:

Potash alum – 1.1g

Aluminium sulphate – 6.3g

Water – Quantity sufficient

PROCEDURE:

1. Dissolve 6.3g of aluminum sulphate in 45ml of water in a beaker.
2. In another beaker dissolves 1.1g of potassium sulphate in 10 ml of water.
3. The two solution are heated separately until the salt dissolve completely. The hot solution of potassium sulphate is added to solution of aluminium sulphate. Heating is continued until the volume becomes half of the volume.
4. The solution is cooled and kept aside for some time.
5. Crystal of potash alum separate out.
6. Filter the product and report.

REPORT: