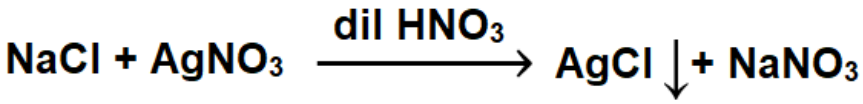
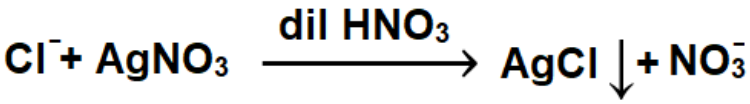
Chemical Reaction:





Note:-

1. **Chloride standard solution (25 ppm Cl):** Dilute 5 mL of 0.0824% w/v solution of sodium chloride to 100 mL with distilled water.
2. **Dilute nitric acid:** Dilute 1.06 mL of conc. Nitric acid in sufficient distilled water to produce 100 mL.
3. **0.1 M Silver nitrate:** Dissolve 1.7 g of silver nitrate to 100 mL with distilled water.
4. **Insoluble substances** like magnesium trisilicate or light kaolin are first boiled with a mixture of water and dilute nitric acid. The solution is filtered and the filtrate is subjected to the test.
5. **Coloured substances** if present may be specially treated. For example, potassium permanganate is decolourised by boiling with ethanol, filtered to remove precipitated manganese dioxide and the filtrate is subjected to the test. The reducing substances which would otherwise react with silver nitrate in the chloride limit test are oxidized.

Practical - 1

Date: ..../...../.....

Aim: To observe limit test for chloride impurities in the given sample as per Indian Pharmacopoeia.

Reference:……

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Requirements:

Apparatus/Equipment required:……..…….....

Chemical required:……..…….....

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Principle

The limit test for chloride is mainly used for the control of chloride impurity in inorganic substances. It depends upon the precipitation of chloride with silver nitrate in presence of dilute nitric acid and the comparison of the opalescence so obtained with standard opalescence containing a known quantity of chloride ions.

Procedure:

Take two 50 mL Nessler Cylinders. Label one as "Test" and the other as "Standard".

Test Solution	Standard Solution
Specific weight of compound is dissolved in water or solution is prepared as directed in the pharmacopoeia and transferred in Nessler cylinder.	Take 1ml of 0.05845 % W/V solution of sodium chloride in Nessler cylinder.
Add 1ml of dilute nitric acid	Add 1ml of dilute nitric acid
Dilute to 50 ml with water in Nessler cylinder	Dilute to 50 ml with water in Nessler cylinder
Add 1ml of $AgNO_3$ solution	Add 1ml of $AgNO_3$ solution
Keep aside for 5 min	Keep aside for 5 min
Observe the Opalescence/Turbidity	Observe the Opalescence/Turbidity

*Compare the opalescence/turbidity produced by the test solution with a standard solution.

Observation:

The opalescence produce in sample solution should not be greater than standard solution. If opalescence produces in sample solution is less than the standard solution, the sample will pass the limit test of chloride and vice - versa.

Reasons:

Nitric acid is added in the limit test of chloride to make solution acidic and helps silver chloride precipitate to make solution turbid at the end of process.

Result:……

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Questions Bank

1. Draw the diagram of Nessler cylinder.

2. What is the meaning of Opalescence?

3. What is the difference between dilute and concentrated acid?

4. What is chemical formula of Nitric acid?

5. Indian Pharmacopoeia is a book of ……..

6. What is the meaning of limit test?

7. What is the chemical formula of potassium permanganate?

8. What is the meaning of 0.1 M Silver nitrate?

9. Write the formula of Molarity calculation.

10. What is the indication of ‘N’, ‘M’ and ‘m’ in term of quantity analysis?