

Limit test for Chlorides (modified)

* principle:

modified limit test is performed if the limit test for a sample (coloured compound) cannot be done by normal method

eg:- potassium permanganate is de-colourised by boiling with ethanol, filtered to remove precipitated manganese dioxide and the filtrate is subjected to the test

* it is based upon the chemical reaction between silver nitrate and soluble chlorides to obtain silver chloride in presence of dilute nitric acid.

* The silver chloride produced in the presence of dil HNO_3 makes the test solution turbid, the extent of turbidity depending upon the amount of chloride present in the substance is compared with a standard turbidity produced by addition of silver nitrate to a standard solution having a known amount of chloride and the same volume of dil nitric acid as used in the test solution

* if the turbidity from the sample has been less than the standard solution, the sample will pass the limit test and vice versa

* Dil nitric acid is used in the limit test of chloride to make solution acidic and which

helps Silver Chloride precipitate to make solution turbid at the end of process.

procedure:

preparation of test solution (KMnO_4)

dissolve 1.5 gm in 50 ml of distilled water, heat on a water-bath and add gradually 6 ml of Ethanol (95%) Cool dilute to 60 ml with distilled water and filter

✱ Take two 50 ml nessler cylinders label one as test and other as standard

Test	Standard
✱ Take 40 ml of the above test solution in nessler cylinder	✱ Take 10 ml of Chloride standard solution and 5 ml of water
✱ Add 1.0 ml of dilute nitric acid	✱ Add 1.0 ml of dilute nitric acid
✱ Dilute to 50 ml with distilled water	✱ Dilute to 50 ml with distilled water
✱ Add 1.0 ml of 5% AgNO_3 solution	✱ Add 1 ml of 5% AgNO_3 solution
✱ Stir immediately with glass Rod and allow to stand for 5 min protected from light	

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 for Chloride and vice versa