

Experiment Limit test of Iron

Aim:-To perform limit test of Iron for given sample as per I.P 2010.

Reference:- Indian Pharmacopoeia by Ministry of Health And Family Welfare, Gov. of India, Volume I 2007, P-72.

Practical book of Pharmaceutical Chemistry, Fourth edition edited by A.H Beckett, J.B Stenlake, CBS Publishers and Distributors, 2005 P-33,34.

Requirements:

- **Chemical Requirement:-**Sample solution, Standard iron solution (Fe^{3+} standard), 20% w/v ammonium thiocyanate, 2N Hydrochloric acid, Distilled water
- **Glassware Requirement:-** Nessler cylinders, Beaker, Measuring cylinder, Glass rod.

Principle:

Iron reacts with ammonium thiocyanate in acidic medium to form **ferric thiocyanate**, a red complex. Intensity of red color is compared to a standard.



Procedure:

1. **Test Solution:** Add 2 mL of 2N HCl to the sample solution and dilute to 50 mL with water.
2. **Standard Solution:** Take 2 mL of standard iron solution (20 ppm), add 2 mL of 2N HCl, dilute to 50 mL.
3. To both solutions, add 5 mL of 20% ammonium thiocyanate.
4. Mix and allow to stand for 5 minutes.
5. Compare color intensity in Nessler cylinders.

Observation:

Observe the red color formation and compare with the standard. (The test passes if the red color of the test is **not more intense** than that of the standard).

Result:-A test sample is passes because the red color of the test is **not more intense** than that of the standard.

Viva Voice Questions

1. What is the purpose of the limit test of iron in pharmaceuticals?
2. What is the principle of the iron limit test?
3. What is the maximum permissible limit of iron according to pharmacopeial standards?
4. What color indicates the presence of iron during the test?
5. What does it mean if the color of the sample solution is more intense than the standard solution?

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