A Concise Quality Control Guide On Essential Drugs

Manual

Accompanying The GPHF-Minilab®

Five New Monographs

Supplement To Volume I
Colour Reactions

GPHF
German Pharma Health Fund e.V.

An Initiative of Research Based Pharmaceutical Companies in Germany

in cooperation with the

MEDICAL MISSION INSTITUTE

7.17 Isoniazid

Primary Screening via Visual Inspection & Disintegration Test

I. VISUAL INSPECTION

Search for deficiencies on labelling, packaging and dosage forms as described in the opening chapters on general methods and operations of the main manual. Write down all product particulars using the *Reporting Form* as a guide. Each tablet or capsule usually contains 100, 200 or 300 mg of isoniazid.

II. DISINTEGRATION TEST

All quick release isoniazid tablets and capsules must pass the disintegration test as described in the opening chapters on general methods and operations of the main manual. They should disintegrate in water at 37 °C in less than 30 minutes. It is a major defect if a drug product does not pass this test.

III. RESULTS & ACTIONS TO BE TAKEN

Drug products from unusually cheap sources, drug products with missing or incorrect accompanying documents and drug products with defective dosage forms, packaging or with incomplete, damaged or missing labels or with labels written in a foreign language should be subjected to an identity test.

Verification of Identity via Colour Reaction

I. EQUIPMENT AND REAGENTS

1) Circular filter paper
2) Pestle
3) Microspoon
4) Graduated test-tube
5) Water R
6) Methanol R
7) Copper(II) acetate 4% TS
8) Sodium hydroxide 8% TS
9) Hydrochloric acid 36% R

II. SAMPLE PREPARATION

Put one tablet on a circular filter paper. Break down the tablet into small bits and pieces using a pestle. Grind till a fine powder is produced. Seperate the coating from the powder if a colour-coated tablet has been used. If the drug has been formulated as a capsule just open one by carefully separating the cap from the bottom shell and use the powder content directly.
Place 3 microspoon of the powder obtained into the test-tube. This will be your sample.

III. COLOUR REACTION

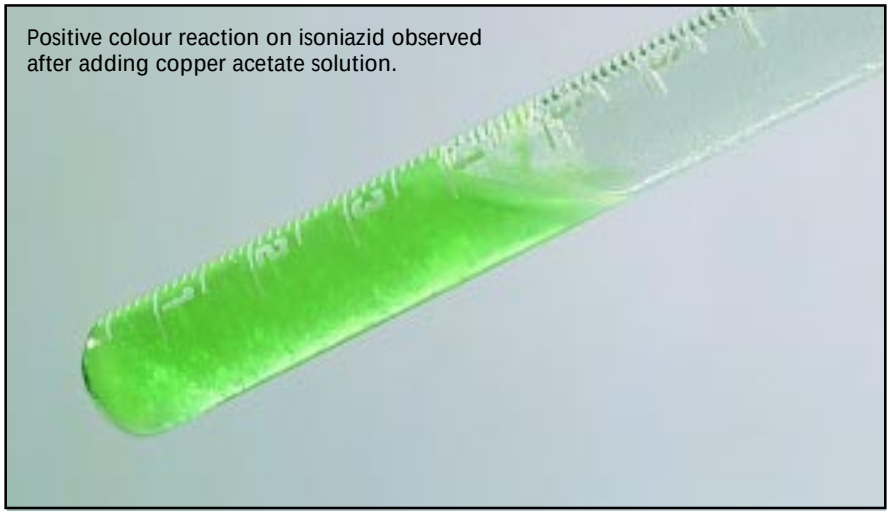
Add to the sample 1 ml of methanol followed by 3 ml of *water* and mix. Add 5 drops of *copper(II) acetate 4%,* thoroughly shake the test-tube and wait for about 3 minutes; a green precipitation slowly develops making the entire solution looking blue-green (turquoise).

Start to shake the test-tube again and add then 10 drops of *sodium hydroxide 8%.* Continue to shake the tube and wait for about 3 minutes; gradually an ochre coloured precipitation is formed making the solution looking like white tea or coffee. Additionally, bubbles made of nitrogen are produced sometimes even forming a thin layer of foam on the top of the solution.
Now, add a further 10 drops of *hydrochloric acid 36%*; on shaking the existing brownish precipitation completely disappears finally obtaining an almost clear and colourless solution.

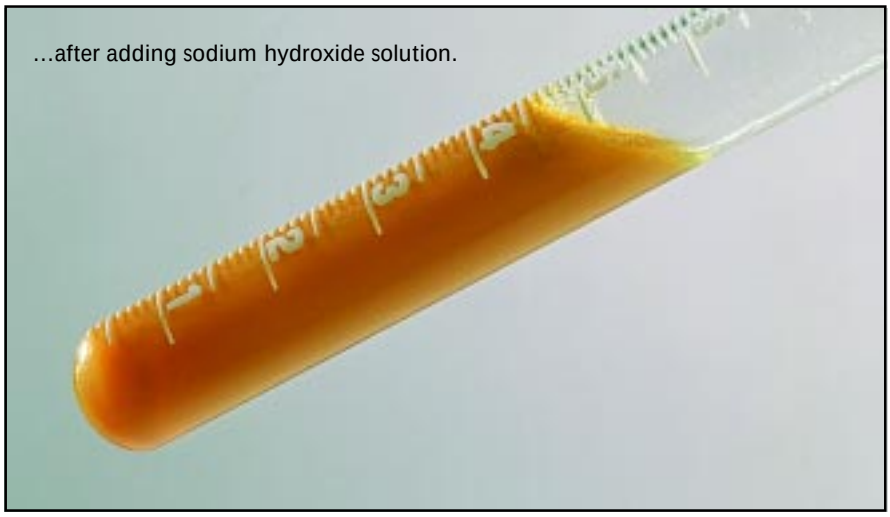
Repeat the full examination cycle with two other samples thus eliminating anomalous results.

N.B.: Vigorous shaking at all stages is essential in order to produce all the colours shown on the page opposite.

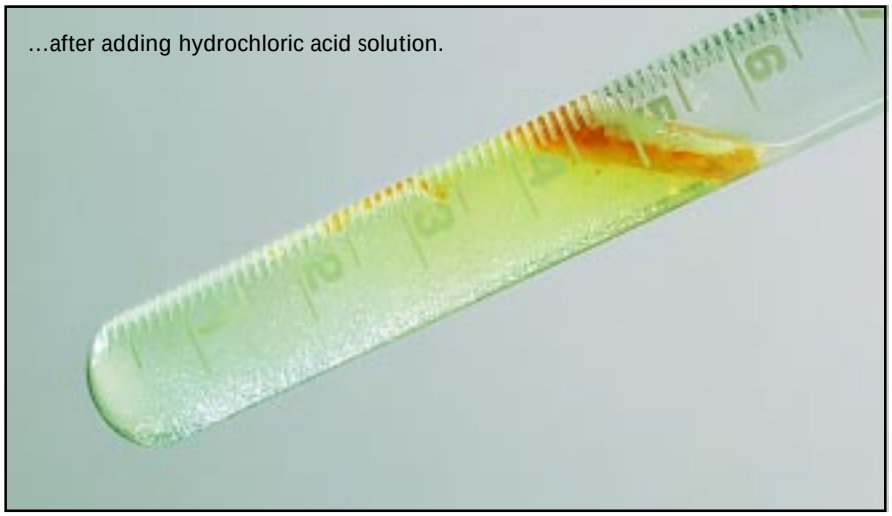
IV. COLOURS OBSERVED



Positive colour reaction on isoniazid observed after adding copper acetate solution.



…after adding sodium hydroxide solution.



…after adding hydrochloric acid solution.

V. RESULTS & ACTIONS TO BE TAKEN

Confirm the drug's identity and verify its potency via a thin layer chromatographic assay if the product shows a positive respond on the colour reaction performed. Do not spoil valuable resources from the TLC kit on batches definitely failing to produce the colour requested. In this case, reject the batch and retain some samples. Refer to a fully equipped drug quality control laboratory for further investigation. Put the batch on quarantine till a final decision on rejection or release has been taken.