# Appendix C – Semi-quantitative spot test for iron as ferrous sulfate, ferrous fumarate, or electrolytic iron.

## I. Reagents

Hydrochloric acid, HCl, 37% Merck 317
Hydrogen peroxide, H2O2, 30%, Merck 7209
Potassium thiocyanate, KSCN, Merck 5124 or 5125

## II. Solutions

KSCN - 10%: Dissolve 10 g of KSCN in 100 ml distilled water.
HCl - 2M: To a 500 ml beaker, add 100 ml distilled water, then 17 ml concentrated HCl and, finally 83 ml distilled water.
H2O2 - 3%: Add 9 ml concentrated H2O2 (30%) to 81 ml distilled water.

### Reagent 1

Immediately before using, mix equal amounts of 10% KSCN and 2M HCl. Mark the levels of 20 and 40 ml on a flask, using a pipette. Add 2M HCl up to the 1st mark and then add 10% KSCN up to the 2nd mark. This is reagent 1. Use within 1 day. Discard the remaining.

### Reagent 2

3% H2O2. Discard remaining solution at the end of the day.

## III. Materials

Watch glass
Droppers

## IV. Procedure

1. Take a sample of 100 g of flour and place it on the watch glass. With the lower part of another watch glass, press on the flour sample so that it forms a flat surface.
2. Add 5 drops of reagent 1 with the dropper so that it covers an area of 4x4 cm (1.5x1.5 inches). Let stand for 15-30 seconds.
3. Add 5 drops of reagent 2 on the surface covered by reagent 1. Let stand for 1-2 minutes.

## V. Interpretation

The appearance of red colored spots indicates the presence of iron. The number of spots is a broad estimation of the amount and homogeneity of iron in the sample. If a more accurate estimation is required, testing with known concentrations of iron (30, 60, and 90 ppm) is recommended in order to compare results of these samples with those of the flour being tested.