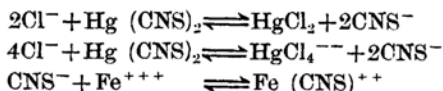


slightly dissociating mercuric thiocyanate and ferric ion is mainly based on the following reactions:



The orange color of ferric thiocyanate formed in the solution is determined colorimetrically.

Reagents:

A series of standard potassium chloride solutions containing 0.2, 0.5 ppm., 1 to 10 ppm. with differences of 1 ppm. and 10 to 20 ppm. with differences of 2 ppm., of chloride is prepared.

Mercuric thiocyanate solution is prepared by dissolving 0.3 g. of mercuric thiocyanate in 100 cc. of 95% ethyl alcohol.

Ferric alum solution is prepared by dissolving 6 g. of ferric ammonium sulfate in 100 cc. of 6 N nitric acid.

Procedure:

Ten cc. of the sample solution and 10 cc. of standard chloride solution are poured into the matched test tubes with stopper. Then 1.0 cc. of mercuric thiocyanate solution and 2.0 cc. of ferric alum solution are added to each solution. Comparisons are carried out after ten minutes from mixing. It is better to observe the colors from above against a white background.

Interfering substances are: bromide, iodide, cyanide, thiosulfate, and nitrite.

Results:

The lowest concentration of the standard solution whose color can be easily distinguished from that of the blank test, is 0.05 ppm. Cl^- . Therefore this is the minimum determinable concentration. However this colorimetric method is applied with best results in the concentration range of 0.1-20 ppm. of chloride. The colored solution has an absorption maximum at 460 $m\mu$ and its orange color is stable for several hours. The colored substance is not extracted with organic solvents such as ether or amyl alcohol.⁽²⁾

New Colorimetric Determination of Chloride using Mercuric Thiocyanate and Ferric Ion⁽¹⁾

By Iwaji IWASAKI, Satori UTSUMI
and Takejiro OZAWA

(Received April 22, 1952)

A new colorimetric method for the determination of low concentrations of chloride using

Table 1

Present. Cl^-	0.3	0.5	1.0	5.0	10.0	15.0 ppm.
Found. Cl^-	0.3	0.5	1.1	5.0	10.0	15.5 ppm.

There are excellent agreements.

This rapid and simple colorimetric method for the determination of low concentrations of chloride can be widely applied to the determination of chloride in water, rocks etc.

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(1) This report was presented at the 5th annual Meeting of the Chem. Soc. Japan, April, 1952.

(2) Reported by I. Iwasaki and H. Shimojima at the 5th annual Meeting of the Chem. Soc. Japan, April, 1952.