CHEMetrics By AquaPhoenix Scientific SIMPLICITY IN WATER ANALYSIS TECHNICAL DATA SHEET

Carbohydrazide - PDTS Method

Version 1 / June 2024

Applications and Industries

Boiler feedwater and condensate

References

G. Frederick Smith Chemical Co., "The Iron Reagents", 3rd., p. 47 (1980)

Chemistry

Sample is treated with a large excess of ferric iron which will stain the solution pale yellowish brown. Carbohydrazide reacts quantitatively with ferric iron by reducing it to the ferrous state. The resulting ferrous iron reacts with PDTS [3-(2-pyridyl)-5,6-bis(4-phenylsulfonic acid)-1,2,4,-triazine disodium salt] to form a peach-pink colored complex in direct proportion to the carbohydrazide concentration. Test results will range from peach to burgundy color and are expressed as ppb (µg/L) or ppm (mg/L) Carbohydrazide.

Sampling Information

This test method is temperature dependent. High sample temperatures may cause false positive test results. For best accuracy, sample temperatures should be 20 ± 3 °C.

Available Analysis Systems

Visual colorimetric: CHEMets®

Storage Requirements

Products should be stored in the dark and at room temperature.

Shelf Life

When stored in the dark and at room temperature:

Visual colorimetric:

CHEMets refill, color comparators, Activator Solution: at least 1 year

Safety Information

Safety Data Sheets (SDS) are available upon request and at www.chemetrics.com. Read SDS before using these products. Breaking the tip of an ampoule in air rather than water may cause the glass ampoule to shatter. Wear safety glasses and protective gloves.

Interference Information

- Ferrous iron interferes positively if present at any level. Other metals, in particular cobalt and copper, may develop color with the reagent. To adjust for interferences from ferrous iron and other metals, analysis can be performed with and without addition of A-2100 Activator Solution, and the carbohydrazide concentration can then be determined by the difference.
- Reducing agents that reduce ferric iron to ferrous will interfere positively.
- Chelating agents (e.g. EDTA) can interfere.
- Highly alkaline or acidic samples may overcome buffering capacity, pH 4 - 5 recommended.
- DEHA interferes positively.
- Hydrazine does not interfere. Other oxygen scavengers may interfere positively or cause off color test results.
- Organic phosphonates, lignosulfonates, manganese, and molybdenum may interfere.
- High sulfate, hardness, borate, and oxalate levels may interfere.
- Cyanide may interfere.
- Nitrites will cause significant positive interference if not pretreated with sulfamic acid (A-9600). Contact tech@aquaphoenixsci.com for more information.
- Sample color or turbidity may make a color match difficult during visual colorimetric testing and may cause a false positive result with instrumental colorimetric tests.

Accuracy Statement

Statements of accuracy are based on laboratory tests performed under ideal testing conditions using standards of known concentration prepared in deionized water.

CHEMets kit: ± 1 color standard increment