Nitrite – Azo Dye Formation Method

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Applications and Industries

Industrial wastewater influent and effluent, industrial process waters, boiler water, cooling water, surface and ground water

References

APHA Standard Methods 23rd ed., Method 4500-NO_2-B – 2000
USEPA Methods for Chemical Analysis of Water and Wastes, Method 354.1 (1983)

Chemistry

In an acidic solution, nitrite diazotizes sulfanilic acid (a primary aromatic amine), then couples with 4,5-dihydroxynaphthalene-2,7-disulfonic acid to produce a highly colored azo dye. The resulting pink-orange color is proportional to the nitrite concentration in the sample. Results are expressed as ppm (mg/L) nitrite-nitrogen (NO_2-N). To convert results to ppm NO_2, multiply by 3.3.

Available Analysis Systems

Visual colorimetric: CHEMets®, VACUettes®
Instrumental colorimetric: Vacu-vials®

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 and VACUettes refills, color comparators: at least 1 year
Instrumental colorimetric:
Vacu-vials kit: at least 1 year

Interference Information

- Ferric iron (Fe^{+3}) may cause the reagent to precipitate.
- Cupric copper (Cu^{+2}) may cause low test results.
- Chromate interferes by causing the formation of a yellow color.
- Nitrate does not interfere.
- Sample alkalinity up to approximately 200 ppm $CaCO_3$ can be tolerated. For samples with higher alkalinity, adjust the pH to approximately 5 prior to analysis.
- 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. CHEMetrics' Sample Zeroing Accessory Pack can be used to correct for potential errors during instrumental analysis.

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 and VACUettes kits: ± 1 color standard increment

Vacu-vials kit, K-7003:
≤ 0.04 ppm at 0 ppm
± 0.02 ppm at 0.08 ppm
± 0.08 ppm at 0.25 ppm
± 0.23 ppm at 0.75 ppm

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.