

Peracetic Acid - DPD Method

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Applications and Industries

Wastewater, Seawater*
Food & Beverage and Pulp and Paper industries

References

APHA Standard Methods Online, Method 4500-PAA - 2019

Chemistry

Sample is treated with an excess of potassium iodide. Peracetic acid (PAA) oxidizes iodide to iodine, and the iodine then oxidizes DPD (N,N-diethyl-p-phenylenediamine) to form a pink colored species in direct proportion to the peracetic acid concentration. Results are expressed as ppm (mg/L) peracetic acid (PAA).

*The DPD chemistry can be used to determine the concentration of Total Residual Oxidizers (TRO) in seawater.

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, Activator Solution, color comparators: at least 1 year

Instrumental colorimetric:

Vacu-vials kit: at least 1 year

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:

≤0.10 ppm at 0 ppm

±0.12 ppm at 0.40 ppm

±0.25 ppm at 1.25 ppm

±0.38 ppm at 3.75 ppm

Interference Information

- The following additional oxidizers are measured quantitatively during analysis: total chlorine, total bromine, total iodine, ozone, permanganate, chlorine dioxide, and performic acid.
- When using the PAA test kits to determine performic acid (PFA) concentration, multiply test results by 0.82 to convert to ppm PFA.
- Peracetic acid itself and other oxidizers at concentrations significantly above the test range may prevent proper color development, causing a false low result.
- Hydrogen peroxide at concentrations up to approximately 10 ppm does not interfere with the test at 1 minute of color development.
- Persulfate up to approximately 1.5 ppm is not expected to interfere at 1 minute of color development. Beyond 1 minute or at higher concentrations, persulfate may interfere positively.
- Sample pHs between 2.5 and 10 are tolerated with this chemistry. However, PAA decomposition rates due to hydrolysis increase in solutions at pHs above 8.2. Samples with extreme pHs or that are highly buffered should be adjusted to approximately pH 6 - 7 prior to analysis.
- Ferric iron can be tolerated at concentrations up to 10 ppm.
- Cupric copper up to 10 ppm does not interfere.
- Manganese (II), Mn²⁺, at up to at least 100 ppm does not interfere.
- Nitrite up to at least 5 ppm does not interfere.
- Chromate may interfere.
- 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.

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.