

Hydrogen Peroxide Analysis in the Presence of Peracetic Acid and Copper Using CHEMetrics® Hydrogen Peroxide Test Kits, Cat. Nos. K-5543 and K-5510

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Peracetic Acid Interference

Peracetic acid (PAA) causes a false positive interference (develops color) with colorimetric hydrogen peroxide test methods. CHEMetrics has developed a procedure to prevent PAA interference with the ferric thiocyanate chemistry employed with our Hydrogen Peroxide Vacu-vials® Test Kit, Cat. No. K-5543 and our Hydrogen Peroxide CHEMets® Test Kit, Cat. No. K-5510.

CHEMetrics has determined experimentally that addition of a controlled amount of a potassium iodide solution (S-2500 Activator Solution) prevents the false positive interference from PAA with the ferric thiocyanate chemistry employed with the K-5543 and K-5510 test kits. PAA in the sample reacts with iodide and is converted to acetic acid. Unlike PAA, acetic acid does not develop color with this test method.

Note: In the absence of PAA, addition of S-2500 solution does not interfere with the hydrogen peroxide test method.

Cupric Copper Interference

Cupric copper at concentrations of 0.1 ppm and above causes an increasing negative interference with the ferric thiocyanate hydrogen peroxide chemistry as the kit reagents age.

CHEMetrics has determined experimentally that addition of a controlled amount of a hydrochloric acid solution (S-6901 Acidifier Solution) minimizes the false negative interference from cupric copper with the

Peroxide Vacu-vials Kit, Cat. No. K-5543 and CHEMets Kit, Cat. No. K-5510.

Note: CHEMetrics® Copper Vacu-vials or CHEMets Test Kits (Cat. Nos. K-3503, K-3510) can be used to determine the copper concentration of the sample. However, addition of S-6901 solution to the sample in the absence of copper does not impact the hydrogen peroxide results.

Test Procedure

1. Add 5 drops of S-2500* Activator Solution to the empty sample cup.
2. Fill the sample cup to the 25-mL mark with the sample to be tested. Stir to mix the contents of the cup.
3. If PAA analysis is desired, analyze the sample according to the K-7913 or K-7904 PAA test kit instructions.
4. If copper is not present in the sample, proceed to step 5. If copper is present, add 5 drops of S-6901* Acidifier Solution to the sample cup. Stir to mix the contents of the cup.
Note: PAA analysis must be performed prior to addition of S-6901 solution.
5. Place the K-5543 or K-5510 ampoule, tip first, into the sample cup. Snap the tip. The ampoule will fill leaving a bubble for mixing.
6. To mix the ampoule, invert it several times, allowing the bubble to travel from end to end.
7. Dry the ampoule. Obtain the hydrogen peroxide test result **30 seconds** after snapping the tip.

**S-2500 and S-6901 solutions can be purchased separately in packs, Cat. Nos. A-2500 and A-6901 respectively.*