

Visual Kits

Methods

Hydrogen peroxide is a strong oxidizing agent with a variety of uses. Applications include the treating of industrial effluents and domestic waste and serving as a disinfectant in aseptic packaging.

For the food and beverage industry, CHEMetrics Hydrogen Peroxide CHEMets® and Vacu-vials® products are used extensively to monitor sterilization solutions in the packaging and sanitizing processes.

The Ferric Thiocyanate Method

Reference: D. F. Boltz and J. A. Howell, eds., *Colorimetric Determination of Nonmetals*, 2nd ed., Vol. 8, p. 304 (1978).

The ferric thiocyanate method consists of ammonium thiocyanate and ferrous iron in acid solution. Hydrogen peroxide oxidizes ferrous iron to the ferric state, resulting in the formation of a red thiocyanate complex. Chlorine will not interfere with this method. Ferric iron will interfere. Results are expressed as ppm (mg/L) H₂O₂.

The DPD Method

References: USEPA Methods for Chemical Analysis of Water and Wastes, Method 330.5 (1983). APHA Standard Methods, 22nd ed., Method 4500-Cl G - 2000. D.F. Boltz and J.A. Howell, eds., *Colorimetric Determination of Nonmetals* 2nd ed., Vol. 8, p. 303 (1978).

With the DPD Method, hydrogen peroxide reacts with DPD (N, N-diethyl-p-phenylenediamine) in the presence of potassium iodide and ammonium molybdate to form a pink product. Results are expressed as ppm (mg/L) H₂O₂.

The Ceric Sulfate Titrimetric Method

Reference: Developed by CHEMetrics, Inc.

CHEMetrics developed a titrimetric method using ceric sulfate as the titrant and ferroin as the end point indicator. A color change from green to orange signals the end of the titration. Results are expressed as percent (%) H₂O₂.

The Ceric Sulfate Go-No-Go Method

Reference: Developed by CHEMetrics, Inc.

Developed for clinical applications where hydrogen peroxide in sterilizing/disinfecting solutions with a MEC (minimum effective concentration) of 6.0 ± 1.0% must be monitored for efficacy. A single, small dose of sample is added to a screw cap vial containing ceric sulfate and the endpoint indicator ferroin.

An immediate color change occurs to signal that the hydrogen peroxide level in the sample is either above or below 6.0%.

Range: 0-0.5 ppm MDL: 0.025 ppm / Method: DPD	
CHEMets Kit	Cat#
CHEMets Refill, 30 ampoules	R-5502
Activator Solution Pack, six 10 mL bottles	A-5500 ¹
Activator Solution Pack, six 10 mL bottles	A-5501 ¹
Comparator 0, 0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.50 ppm	C-5502
Kit comes in a plastic case and contains everything needed to perform 30 tests: Refill, Comparator, Activator Solutions, 25 mL sample cup and instructions.	

Range: 0-1 & 1-10 ppm MDL: 0.05 ppm / Method: Ferric Thiocyanate	
CHEMets Kit	Cat#
CHEMets Refill, 30 ampoules	R-5510
Low Range Comparator 0, 0.1, 0.2, 0.3, 0.4, 0.6, 0.8, 1.0 ppm	C-5501
High Range Comparator 1, 2, 3, 4, 5, 6, 7, 8, 10 ppm	C-5510
Kit comes in a plastic case and contains everything needed to perform 30 tests: Refill, Low and High Range Comparators, 25 mL sample cup and instructions.	

¹The accessory pack supplies enough solution to perform at least 200 tests.



Range: 0-30 & 30-300 ppm
MDL: 5 ppm / Method: Ferric Thiocyanate

	Cat#
VACUettes Kit	K-5510D
VACUettes Refill, 30 ampoules	R-5510D
Low Range Comparator 0, 5, 7.5, 10, 15, 20, 25, 30 ppm	C-5501D
High Range Comparator 30, 60, 90, 120, 150, 175, 200, 250, 300 ppm	C-5510D

Kit comes in a plastic case and contains everything needed to perform 30 tests (except distilled water): Refill, Low and High Range Comparators, dilutor snapper cup, micro test tube and instructions.

Range: 0-1200 & 1200-12,000 ppm
MDL: 200 ppm / Method: Ferric Thiocyanate

	Cat#
VACUettes Kit	K-5510C
VACUettes Refill, 30 ampoules	R-5510C
Low Range Comparator 0, 200, 300, 400, 600, 800, 1000, 1200 ppm	C-5501C
High Range Comparator 1200, 2400, 3600, 4800, 6000, 7000, 8000, 10,000, 12,000 ppm	C-5510C

Kit comes in a plastic case and contains everything needed to perform 30 tests (except distilled water): Refill, Low and High Range Comparators, dilutor snapper cup, micro test tube and instructions.

Range: 0-60 & 60-600 ppm
MDL: 10 ppm / Method: Ferric Thiocyanate

	Cat#
VACUettes Kit	K-5510A
VACUettes Refill, 30 ampoules	R-5510A
Low Range Comparator 0, 10, 15, 20, 30, 40, 50, 60 ppm	C-5501A
High Range Comparator 60, 120, 180, 240, 300, 350, 400, 500, 600 ppm	C-5510A

Kit comes in a plastic case and contains everything needed to perform 30 tests (except distilled water): Refill, Low and High Range Comparators, dilutor snapper cup, micro test tube and instructions.

Range: 2-20%
MDL: 2.0% Method: Ceric Sulfate Titrant with Ferroin Indicator

	Cat#
Titrets Kit	K-5530
Increments: 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2, 3.6, 4.0, 5.0, 6.0, 7.0, 8.0, 10, 14, 20%	

Kit comes in a cardboard box and contains everything needed to perform 30 tests (except distilled water): thirty ampoules with valve assemblies, 1.0 mL syringe, titrettor, 50 mL sample cup and instructions.

Range: 0-120 & 120-1200 ppm
MDL: 20 ppm / Method: Ferric Thiocyanate

	Cat#
VACUettes Kit	K-5510B
VACUettes Refill, 30 ampoules	R-5510B
Low Range Comparator 0, 20, 30, 40, 60, 80, 100, 120 ppm	C-5501B
High Range Comparator 120, 240, 360, 480, 600, 700, 800, 1000, 1200 ppm	C-5510B

Kit comes in a plastic case and contains everything needed to perform 30 tests (except distilled water): Refill, Low and High Range Comparators, dilutor snapper cup, micro test tube and instructions.

Go-No-Go Kit

Range: 6.0% Control Point
Method: Ceric Sulfate Titrant with Ferroin Indicator

	Cat#
Go-No-Go Kit	K-5500C

Kit comes in a cardboard box and contains everything needed to perform 30 tests: thirty 16-mm vials with caps, thirty pipette tips, 100 uL MiniPet[®], Indicator Solution and instructions.

MiniPet[®] is a registered trademark of Tricontinent Scientific, Inc.



 Instrumental Kits

Multi-Analyte Photometers

V-2000 / V-3000 Series

(See page 14 for instrumental features)

Range: 0-3.00 ppm

Method: DPD

	Cat#
Vacu-vials Kit	K-5513

Kit comes in a cardboard box and contains everything needed to perform 30 tests: thirty ampoules, Activator Solutions, 25 mL sample cup, ampoule blank and instructions.

Range: 0-6.00 ppm

Method: Ferric Thiocyanate

	Cat#
Vacu-vials Kit	K-5543

Kit comes in a cardboard box and contains everything needed to perform 30 tests: thirty ampoules, 25 mL sample cup, ampoule blank and instructions.

Vacu-vials Kits require the use of a CHEMetrics Direct-Readout Photometer (photometers sold separately) or a spectrophotometer capable of accepting a 13 mm diameter round cell. See page 14 for details.

SAM Single-Analyte Photometer

(See page 17 for instrumental features)

Range: 0-6.00 ppm

Method: Ferric Thiocyanate

	Cat#
Hydrogen Peroxide SAM Kit	I-2016

Vacu-vials Kit, 30 ampoules, 25 mL sample cup, ampoule blank and instructions.

K-5543

SAM Kit comes in a plastic case and contains everything needed to perform 30 tests: Vacu-vials Kit, SAM Photometer, light shield, 4 AAA batteries, screwdriver, and instructions.

Kit Components common to Hydrogen Peroxide

Description	Cat#
Sample Cup Pack, 25 mL (6 ea)	A-0013
Micro Test Tube Pack (10 ea)	A-0015
Dilutor Snapper Cup Pack (6 ea)	A-0018
Ampoule Blank Pack (5 ea)	A-0023
Syringe Pack, 1.0 mL (6 ea)	A-0027
Titrettor Pack (1 ea)	A-0053
Sample Cup & Cap Pack, 50 mL (6 ea)	A-0058
MiniPet®, 100 µL (1 ea)	A-0170
Pipette Tips Pack, (30 ea)	A-0171

Instructions and MSDS(s) are posted on our website.

If no shelf-life is listed for a product, then the shelf-life is at least 2 years.

