



## Visual Kits

## Methods

Because of its strong oxidizing properties, chlorine is an excellent biocide used to treat potable waters, municipal wastes, and swimming pools. When used to treat potable water, chlorine helps alleviate the adverse effects of iron, manganese, ammonia, and sulfide. The Maximum Residual Disinfectant Level for chlorine is 4 mg/L in drinking water.

### The DPD Method

**References:** USEPA Methods for Chemical Analysis of Water and Wastes, Method 330.5 (1983).  
 APHA Standard Methods, 21<sup>st</sup> ed., Method 4500-Cl G (2005).



In the USEPA-approved DPD methodology, free chlorine reacts with DPD to form a pink product. When ammonia or amines are present, some of the chlorine may exist

as combined chlorine. Combined chlorine will not interfere with the free chlorine results, provided the readings are taken at one minute. To determine total chlorine (the sum of free and combined), use the A-2500 Activator Solution (potassium iodide) supplied in the kit. Results are expressed as ppm (mg/L) Cl<sub>2</sub>.

### The DDPD™ Method

**Reference:** Developed by CHEMetrics, Inc.

The DDPD™ method is derived from the DPD method. Test kits that employ this chemistry are well suited for use where biocides and chromate corrosion inhibitors are used simultaneously. DDPD reacts with free chlorine to form a purple product. When ammonia or amines are present in the sample, some of the chlorine may exist as *combined chlorine*. To determine total chlorine (the sum of free and combined), use the A-2500 Activator Solution (potassium iodide) that is supplied in the kit. Results are expressed as ppm (mg/L) Cl<sub>2</sub>.

CHEMetrics' DDPD method is also applicable to the direct determination of hypochlorite concentrations in various cleaning preparations and disinfectants prior to their dilution. The DDPD compound reacts with hypochlorite ions to form a purple color. Results are expressed as percent (%) NaOCl.

Range: 0-0.20 ppm MDL: 0.04 ppm / Method: DDPD	
	Cat#
<b>Chlorine (free &amp; total) ULR CHEMets Kit</b>	<b>K-2511</b>
ULR CHEMets Refill, 30 ampoules	R-2511
Activator Solution Pack, six 10 mL bottles	A-2500 <sup>1</sup>
Neutralizer Solution Pack, six 20 mL bottles	A-2501 <sup>1</sup>
Comparator 0, 0.04, 0.06, 0.08, 0.10, 0.12, 0.16, 0.20 ppm	C-2511
Kit comes in a plastic case and contains everything needed to perform 30 tests: Refill, Comparator, Activator Solution, Neutralizer Solution, 25 mL sample cup, instructions, and MSDS.	

Range: 0-1 & 1-5 ppm MDL: 0.05 ppm / Method: DPD	
	Cat#
<b>Chlorine (free &amp; total) CHEMets Kit</b>	<b>K-2504</b>
CHEMets Refill, 30 ampoules	R-2500
Activator Solution Pack, six 10 mL bottles	A-2500 <sup>1</sup>
Low Range Comparator 0, 0.1, 0.2, 0.3, 0.4, 0.6, 0.8, 1.0 ppm	C-2504
High Range Comparator 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0 ppm	C-2506
Kit comes in a plastic case and contains everything needed to perform 30 tests: Refill, Low and High Range Comparators, Activator Solution, 25 mL sample cup, instructions, and MSDS.	

Range: 0-1 & 1-5 ppm MDL: 0.05 ppm / Method: DDPD	
	Cat#
<b>Chlorine (free &amp; total) CHEMets Kit</b>	<b>K-2505</b>
CHEMets Refill, 30 ampoules	R-2505
Activator Solution Pack, six 10 mL bottles	A-2500 <sup>1</sup>
Neutralizer Solution Pack, six 20 mL bottles	A-2501 <sup>1</sup>
Low Range Comparator 0, 0.1, 0.2, 0.3, 0.4, 0.6, 0.8, 1.0 ppm	C-2501
High Range Comparator 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0 ppm	C-2505
Kit comes in a plastic case and contains everything needed to perform 30 tests: Refill, Low and High Range Comparators, Activator Solution, Neutralizer Solution, 25 mL sample cup, instructions, and MSDS.	

Range: 0-30 & 30-150 ppm MDL: 5 ppm / Method: DDPD	
	Cat#
<b>Chlorine (free &amp; total) VACUettes Kit</b>	<b>K-2505D</b>
VACUettes Refill, 30 ampoules	R-2505D
Activator Solution Pack, six 10 mL bottles	A-2500 <sup>1</sup>
Neutralizer Solution Pack, six 20 mL bottles	A-2501 <sup>1</sup>
Low Range Comparator 0, 5, 7.5, 10, 15, 20, 25, 30 ppm	C-2501D
High Range Comparator 30, 45, 60, 75, 87.5, 100, 112.5, 125, 150 ppm	C-2505D
Kit comes in a plastic case and contains everything needed to perform 30 tests (except distilled water): Refill, Low and High Range Comparators, Activator Solution, Neutralizer Solution, dilutor snapper cup, micro test tube, instructions, and MSDS.	

\*Approved for drinking and wastewater using CHEMetrics instrumental DPD Vacu-ials products. Please contact us for a copy of the USEPA approval letter.

**Range: 0-60 & 60-300 ppm**  
MDL: 10 ppm / Method: DDPD

	Cat#
<b>Chlorine (free &amp; total) VACUettes Kit</b>	<b>K-2505A</b>
VACUettes Refill, 30 ampoules	R-2505A
Activator Solution Pack, six 10 mL bottles	A-2500 <sup>1</sup>
Neutralizer Solution Pack, six 20 mL bottles	A-2501 <sup>1</sup>
Low Range Comparator: 0, 10, 15, 20, 30, 40, 50, 60 ppm	C-2501A
High Range Comparator: 60, 90, 120, 150, 175, 200, 225, 250, 300 ppm	C-2505A

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

**Range: 0-120 & 120-600 ppm**  
MDL: 20 ppm / Method: DDPD

	Cat#
<b>Chlorine (free &amp; total) VACUettes Kit</b>	<b>K-2505B</b>
VACUettes Refill, 30 ampoules	R-2505B
Activator Solution Pack, six 10 mL bottles	A-2500 <sup>1</sup>
Neutralizer Solution Pack, six 20 mL bottles	A-2501 <sup>1</sup>
Low Range Comparator 0, 20, 30, 40, 60, 80, 100, 120 ppm	C-2501B
High Range Comparator 120, 180, 240, 300, 350, 400, 450, 500, 600 ppm	C-2505B

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

**Range: 0-1000 & 1000-5000 ppm**  
MDL: 100 ppm / Method: DDPD

	Cat#
<b>Chlorine (free &amp; total) VACUettes Kit</b>	<b>K-2505C</b>
VACUettes Refill, 30 ampoules	R-2505C
Activator Solution Pack, six 10 mL bottles	A-2500 <sup>1</sup>
Neutralizer Solution Pack, six 20 mL bottles	A-2501 <sup>1</sup>
Low Range Comparator 0, 100, 200, 300, 400, 600, 800, 1000 ppm	C-2501C
High Range Comparator 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500, 5000 ppm	C-2505C

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

**Range: 0.4-1.9% as NaOCl**  
MDL: 0.4% / Method: DDPD

	Cat#
<b>Chlorine (hypochlorite) VACUettes Kit</b>	<b>K-5806</b>
VACUettes Refill, 30 ampoules	R-5806
Comparator 0.4, 0.6, 0.8, 1.0, 1.1, 1.3, 1.4, 1.6, 1.9%	C-5806

Kit comes in a plastic case and contains everything needed to perform 30 tests (except distilled water): Refill, Comparator, 25 mL sample cup, dilutor snapper cup, 1.0 mL syringe, micro test tube, instructions, and MSDS.

**Range: 2.5-13% as NaOCl**  
MDL: 2.5% / Method: DDPD

	Cat#
<b>Chlorine (hypochlorite) VACUettes Kit</b>	<b>K-5814</b>
VACUettes Refill, 30 ampoules	R-5814
Comparator 2.5, 4.0, 5.0, 6.5, 8.0, 9.0, 10.5, 12.0, 13.0%	C-5814

Kit comes in a plastic case and contains everything needed to perform 30 tests (except distilled water): Refill, Comparator, 25 mL sample cup, dilutor snapper cup, 1.0 mL syringe, micro test tube, instructions, and MSDS.



## Instrumental Kits

### V-2000 Multi-Analyte Photometer (See page 12 for instrumental features)

**Range: 0.40-5.00 ppm**  
Method: DPD

	Cat#
<b>Chlorine (free) Vacu-vials Kit (USEPA Approved)</b>	<b>K-2523</b>

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

**Range: 0.40-5.00 ppm**  
Method: DPD

	Cat#
<b>Chlorine (free &amp; total) Vacu-vials Kit (USEPA Approved)</b>	<b>K-2513</b>

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

### SAM Single-Analyte Photometer (See page 15 for instrumental features)

**Range: 0.40-5.00 ppm**  
Method: DPD

	Cat#
<b>Chlorine (free &amp; total) SAM Kit</b>	<b>I-2001</b>

Vacu-vials Kit, 30 ampoules, Activator Solution, 25 mL sample cup, ampoule blank, instructions, calibration table, and MSDS.

SAM Kit comes in a plastic case and contains everything needed to perform 30 tests: Vacu-vials Kit, SAM Photometer, 2 AA batteries, and instructions.

*Vacu-vials Kits require the use of the V-2000 Photometer, or a spectrophotometer capable of accepting a 13 mm diameter round cell. Instrument sold separately.*

<sup>1</sup>The accessory pack supplies enough solution to perform at least 200 tests. The Activator Solution, A-2500, is used to determine Total Chlorine.

#### Kit Components common to Chlorine

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

**Instructions are posted on our website.**

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