Methods

Low-level ammonia nitrogen may be naturally present in water as a result of the biological decay of plant and animal matter. Higher concentrations in surface waters can indicate contamination from waste treatment facilities, raw sewage, industrial effluents (particularly from petroleum refineries), or fertilizer runoff. Excessive ammonia concentrations are toxic to aquatic life.

The Direct Nesslerization Method

Reference: ASTM D 1426-03, Ammonia Nitrogen in Water, Test Method A. APHA Standard Methods, 18th ed., Method 4500-NH_3 C (1992).

The test kits employing the well-established Nessler reagent* to determine ammonia concentrations are applicable to drinking water, clean surface water, good-quality nitrified wastewater effluent, and seawater. In some waters, calcium and magnesium concentrations can cause cloudiness of the reagent. Adding a few drops of stabilizer solution (Rochelle Salt) will prevent this cloudiness. References recommend distilling samples prior to analysis. Results are expressed as ppm (mg/L) ammonia-nitrogen, NH_3-N.

Shelf-life: although the Nessler reagent is stable, its high alkali content attacks the glass ampoule. The resulting precipitate interferes with color comparison. We recommend stocking quantities of CHEMets® and VACUettes® ampoules that will be used within five months. A two-month supply of Vacu-vials ampoules is suggested. ***Refrigeration will dramatically extend the shelf-life of these products.***

*Contains mercury. Dispose according to local, state or federal laws.

The Salicylate Method

References: Krom, Michael D., Spectrophotometric Determination of Ammonia: A Study of a Modified Berthelot Reduction Using Salicylate and Dichloroisocyanurate, *The Analyst*, V105, pp. 305-316, 1980.

In the ammonia test method that employs the Salicylate chemistry, free ammonia reacts with hypochlorite to form monochloramine. Monochloramine reacts with salicylate, in the presence of sodium nitro-ferricyanide, to form 5-aminosalicylate, a green-colored complex. This test method measures free ammonia and monochloramine. Results are expressed in ppm (mg/L) ammonia-nitrogen, NH_3-N.

The Salicylate Method offers similar sensitivity to the Nesslerization Method and there is no generation of mercury-containing waste.

Visual Kits

Range: 0-1 & 1-10 ppm
MDL: 0.05 ppm / Method: Direct Nesslerization

CHEMets Kit	Cat# *K-1510
CHEMets Refill, 30 ampoules, Shelf-life 5 months	*R-1501[2]
Stabilizer Solution Pack, six 10 mL bottles	A-1500[1]
Stabilizer Solution Pack, six 20 mL bottles	A-1501[1]
Low Range Comparator 0, 0.1, 0.2, 0.3, 0.4, 0.6, 0.8, 1.0 ppm	C-1501
High Range Comparator 1, 2, 3, 4, 5, 6, 7, 8, 10 ppm	C-1510

Kit comes in a plastic case and contains everything needed to perform 30 tests: Refill, Low and High Range Comparators, Stabilizer Solutions, 25 mL sample cup, 1.0 mL syringe, instructions, and MSDS.

Range: 0-2 & 0-20 ppm
MDL: 0.125 ppm / Method: Salicylate

CHEMets Kit	Cat# K-1410
CHEMets Refill, 30 ampoules	R-1401
Activator Solution Pack, six 20 mL bottles, Shelf-life 8 months	A-1400[1]
Catalyzer Solution Pack, six 20 mL bottles	A-1401[1]
Stabilizer Solution Pack, six 20 mL bottles	A-1402
Comparator 0, 0.25, 0.50, 0.75, 1.0, 1.25, 1.5, 1.75, 2.0 ppm	C-1402

Kit comes in a plastic case and contains everything needed to perform 30 tests (except distilled water): Refill, Comparator, Activator Solution, Catalyzer Solution, Stabilizer Solution, 25 mL sample cup, 3.0 mL syringe, instructions, and MSDS.

Range: 0-30 & 30-300 ppm
MDL: 5 ppm / Method: Direct Nesslerization

VACUettes Kit	Cat# *K-1510D
VACUettes Refill, 30 ampoules, Shelf-life 5 months	*R-1501D[2]
Low Range Comparator 0, 5, 7.5, 10, 15, 20, 25, 30 ppm	C-1501D
High Range Comparator 30, 60, 90, 120, 150, 175, 200, 250, 300 ppm	C-1510D

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, instructions, and MSDS.

*Contains mercury. Dispose according to local, state or federal laws.

Instrumental Kits

Range: 0-60 & 60-600 ppm
MDL: 10 ppm / Method: Direct Nesslerization

VACUettes Kit	Cat# *K-1510A
VACUettes Refill, 30 ampoules, Shelf-life 5 months	*R-1501A[2]
Low Range Comparator 0, 10, 15, 20, 30, 40, 50, 60 ppm	C-1501A
High Range Comparator 60, 120, 180, 240, 300, 350, 400, 500, 600 ppm	C-1510A

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, instructions, and MSDS.

Range: 0-120 & 120-1200 ppm
MDL: 20 ppm / Method: Direct Nesslerization

VACUettes Kit	Cat# *K-1510B
VACUettes Refill, 30 ampoules, Shelf-life 5 months	*R-1501B[2]
Low Range Comparator 0, 20, 30, 40, 60, 80, 100, 120 ppm	C-1501B
High Range Comparator 120, 240, 360, 480, 600, 700, 800, 1000, 1200 ppm	C-1510B

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, instructions, and MSDS.

Range: 0-1000 & 1000-10,000 ppm
MDL: 100 ppm / Method: Direct Nesslerization

VACUettes Kit	Cat# *K-1510C
VACUettes Refill, 30 ampoules, Shelf-life 5 months	*R-1501C[2]
Low Range Comparator 0, 100, 200, 300, 400, 600, 800, 1000 ppm	C-1501C
High Range Comparator 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000, 10,000 ppm	C-1510C

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, instructions, and MSDS.

[1] The accessory pack supplies enough solution to perform at least 200 tests. A-1501 accessory pack supplies enough solution to analyze approximately 100 seawater samples.

[2] This shelf-life can be extended by 18 months if the ampoules are stored in the refrigerator when not in use.

Instructions are posted on our website.
If no shelf-life is listed for a product, then the shelf-life is at least 2 years.

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

Range: 02.0-30.0 ppm
Method: Salicylate

	Cat#
Vacu-vials Kit, Shelf-life 8 months	**K-1403**

Kit comes in a cardboard box and contains everything needed to perform 30 tests: thirty ampoules, Activator Solution, Catalyzer Solution, Stabilizer Solution, 25 mL sample cup, ampoule blank, 3.0 mL syringe, instructions, calibration table, and MSDS.

Range: 0.70-7.00 ppm
Method: Direct Nesslerization

	Cat#
Vacu-vials Kit, Shelf-life 2 months	***K-1503[2]**

Kit comes in a cardboard box and contains everything needed to perform 30 tests: thirty ampoules, Stabilizer Solutions, 25 mL sample cup, ampoule blank, 1.0 mL syringe, instructions, calibration table, and MSDS.

Range: 1.0-14.0 ppm
Method: Direct Nesslerization

	Cat#
Vacu-vials Kit, Shelf-life 2 months	***K-1523[2]**

Kit comes in a cardboard box and contains everything needed to perform 30 tests: thirty ampoules, Stabilizer Solutions, 25 mL sample cup, ampoule blank, 1.0 mL syringe, instructions, calibration table, and MSDS.

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.

Kit Components common to Ammonia

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
Syringe Pack, 3.0 mL (6 ea)	A-0063

*Contains mercury. Dispose according to local, state or federal laws.