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PRODUCT DATA SHEET

KPD-52

AquaTru® Ammonia (salicylate) Test Kits

Item No. 35980 (fresh water); Item No. 35970 (Marine)

PRODUCT DESCRIPTION:

Ammonia is a principal excretion product of fishes which results from the metabolism of nitrogenous (nitrogen containing) compounds in their food. These compounds are composed mainly of protein. Ammonia is also formed from the bacterial degradation of nitrogen containing organic materials such as decaying plant and animal matter. It is present in solutions as both ionized (nontoxic NH_4^+) and unionized (toxic NH_3); the proportion of these two forms is pH and temperature dependent

Increased concentrations of ammonia in aquarium water can result in gill tissue damage, stress and eventual death to the fish if it is not controlled. In an established biological filter, autotrophic bacteria will utilize ammonia and convert it to nitrite; however this conversion is dependent upon environmental conditions including pH, oxygen content, and temperature of the water. If conditions inhibit nitrification (the conversion of ammonia to nitrite) or if the nitrifying bacteria in the filter have not been established, the ammonia can reach dangerous levels in a very short period of time. As little as 0.6 ppm total ammonia can be toxic to fish. Although the proportion of total ammonia that is in the toxic (un-ionized) form is pH and temperature dependent, it is necessary to accurately monitor the total ammonia present so that the actual concentration of the toxic form can be determined.

ADVANTAGES

- 1) Fast and accurate readings in ranges appropriate to fish health. Graduations of concentration are very small to facilitate accurate readings of highly toxic ammonia.
- 2) Highly stable powdered reagents. Sealed in foil pillows and dated to insure freshness.
- 3) Easy-to-use kit: simple step-by-step instructions and explanations.
- 4) Readings of ammonia are expressed both as ammonia nitrogen and as ammonia.

INTERFERENCES

Excessive levels of calcium, magnesium and nitrite in the water will interfere in the performance of this test when concentrations exceed 1000 mg/L as CaCO_3 ; 6000 mg/L as CaCO_3 ; and 12 mg/L $\text{NO}_2\text{-N}$, respectively. Sulfate, nitrate and phosphate may interfere if concentrations exceed 300 mg/L SO_4^{2-} ; 100 mg/L $\text{NO}_3\text{-N}$; and 100 mg/L $\text{PO}_4^{3-}\text{(P)}$.

GUIDELINES FOR ACCURATE TEST RESULTS

- 1) Rinse the color cube 2-3 times before collecting samples. It is suggested that tap water be used for the initial rinse so chemicals do not get into the aquarium or pond water when the cube is dipped. Aquarium or pond water should be used for final rinsing so that residual tap water will not affect the readings. Discard the rinse water each time so that residual chemicals are not poured into aquarium.
- 2) When collecting water samples, take care to obtain a representative sample. For example, collection near the bottom where organic compounds have accumulated can result in higher readings. The collection of water at the surface can also give erroneous results since surface temperature fluctuations can change the actual concentration of the ammonia in solution. To check sampling techniques, two samples can be taken and tested; any variation in the results indicates that more care should be exercised when collecting samples. A recommended method is to (a) submerge the rinsed, capped cube to midwater, (b) open the cube and



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allow to fill with water, (c) cap while still submerged, and (d) drain water to correct level (discard excess).
3) Test the water sample immediately after collection.
4) For consistent accurate readings when making comparisons, use white paper as a background and read into normal daylight or cool white fluorescent light sources.

DIRECTIONS FOR USE

1. Cut open one of the foil pillows marked "ammonium salicylate" and empty contents into the smaller cell. Put the cap on securely. Do not place your finger over the cube's sample cell unless the cap is in place. Shake cube several times to dissolve powder completely. Allow sample to set for not less than three minutes.
2. Open cap. Cut open one of the foil pillows marked "ammonium cyanurate" and add contents to the smaller cell. Replace the cap securely and shake cube to dissolve completely. Allow sample to set for 15 minutes.
3. Match the color of the sample to the closest color in the Test Cube by moving the sliding window up or down until both left and right windows match as close as possible. Read the level of total ammonia in mg/L from the scale. Flush reacted water sample down the drain. DO NOT return water to aquarium or pond. All fishes have varying tolerances to ammonia. If the concentration approaches 0.1 ppm total ammonia nitrogen, the use of Kordon's AmQuel® ammonia remover will reduce toxic levels.

STABILITY

The reagents should be used before the expiration date shown on the package. If the reagents are to be used after the expiration date they should be checked with an accurate standard solution such as Kordon's Test Kit Standards, to insure the reliability of the reagents. The color comparator strip should not be exposed to strong light sources for an extended length of time to prevent fading of the colors. The reagents should be stored in a cool place.

PRODUCT SPECIFICATIONS

The Freshwater and Saltwater Kordon Ammonia Test Kits are available separately or in a Master Test Kit.

The Individual Test Kit includes:

A color comparator of molded plastic with a colored plastic insert that reads 0.0-0.8 mg/L (ppm) total ammonia in 0.2 increments (Salt Water) and 0.0-1.0 mg/L (ppm) total ammonia in 0.2 increments (Fresh Water); 20 pillows (10 each of Ammonium Salicylate and Ammonium Cyanurate) sufficient for 10 tests. Detailed instructions for each test are included in every kit.



PACKAGING:

Item Number	Product Description
35970	Saltwater Ammonia Salicylate Test Kit
35980	Freshwater Ammonia Salicylate Test Kit
35770	Ammonia Salicylate Fresh and Saltwater Reagents (10 tests)
34702	Ammonia Salicylate Fresh and Saltwater Reagents (50 tests)

ORGANIC NITROGEN CONVERSIONS

A lot of confusion exists in regard to the measurement of organic nitrogen (ammonia, nitrite and nitrate) concentrations. When dealing with organic nitrogen in aquariums and ponds, it is essential to know whether readings are expressed as ion concentrations or as nitrogen concentrations. Many test kits do not explain how they express concentrations. This can lead to serious miscalculations. Ammonia concentrations in Kordon's Salicylate Ammonia Test Kits are in units of ammonia ion (printed in bold face) and ammonia nitrogen (see explanation below). Giving both methods of determining ammonia concentration allows the aquarist to use the method that matches the information available

Ammonia nitrogen is that nitrogen present in water that is from total ammonia in the solution. To convert readings of ammonia nitrogen to ammonia ion values: Multiply the nitrogen reading by 1.3. For example, an ammonia nitrogen concentration of .5 ppm multiplied by 1.3 would equal .65 ppm ammonia ion. The conversion factor of 1.3 is based upon weight proportions of the nitrogen and hydrogen in ammonia (1.3 grams of ammonia contain one gram of nitrogen).

The calculation of the conversion factor is as follows:

Nitrogen atomic weight: 14.01

Hydrogen atomic weight: 1.01

Molecular weight NH₄ (ammonium): (M.W. nitrogen) + (4) (M.W. hydrogen) = (14.01 + (4) (1.01) =18.05

Ammonia nitrogen = $14.01 \div 18.05 = 0.7762$