

Freshwater Water Quality Testing

This activity uses API Freshwater Master Test Kit



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pH Test

Why Test pH?

pH is the measure of acidity of water. A pH reading of 7.0 is neutral. A pH higher than 7.0 is alkaline, and a pH lower than 7.0 is acidic. Maintaining the aquarium at the proper pH ensures optimal water quality. The pH should be tested weekly, since natural materials in the aquarium (such as fish waste and uneaten food) can cause pH changes.

Testing Tips

The minimum pH reading for this kit is 6.0 and the maximum is 7.6. Under extreme water conditions, readings below the minimum will read 6.0 and above the maximum will read 7.6. pH adjustments outside the range of this kit will not show any changes until the pH of the aquarium water is within the range of this kit. When keeping livebearers, goldfish, African Cichlids or marine fish & invertebrates use the API HIGH RANGE pH TEST KIT.

Directions

1. Fill a clean test tube with 5 ml of water to be tested (to the line on the tube).
2. Add 3 drops of pH Test Solution, holding dropper bottle upside down in a completely vertical position to assure uniformity of drops.
3. Cap the test tube and invert tube several times to mix solution.
4. Read the test results by comparing the color of the solution to the pH Color Chart. The tube should be viewed in a well-lit area against the white area of the chart. The closest match indicates the pH of the water sample.

Recommended pH Levels

A pH of 7.0 is ideal when keeping a community aquarium containing a variety of tropical fish. Goldfish and livebearers prefer a pH of 7.5. Many Amazonian fish, like angelfish and neon tetras, prefer a pH of 6.5 to 6.8. Mollies and swordtails thrive at pH 7.2 to 7.5. To raise or lower the pH of a freshwater aquarium, use API pH UP® or pH DOWN®. To automatically adjust pH to a preset level, use API PROPER pH® 6.5, 7.0, or 7.5.

High Range pH Test

Why Test pH?

pH is the measure of acidity of water. A pH reading of 7.0 is neutral. A pH higher than 7.0 is alkaline, and a pH lower than 7.0 is acidic. Maintaining the aquarium at the proper pH ensures optimal water quality. The pH should be tested weekly, since natural materials in the aquarium (such as fish waste and uneaten food) can cause pH changes.

Testing Tips

The minimum pH reading for this kit is 7.4 and the maximum is 8.8. Under extreme water conditions, readings below the minimum will read 7.4 and above the maximum will read 8.8. pH adjustments outside the range of this kit will not show any changes until the pH of the aquarium water is within the range of this kit.

Directions

1. Fill a clean test tube with 5 ml of water to be tested (to the line on the tube).
2. Add 5 drops of High Range pH Test Solution, holding dropper bottle upside down in a completely vertical position to assure uniformity of drops.
3. Cap the test tube & invert tube several times to mix solution.
4. Read the test results by comparing the color of the solution to the High Range pH Color Chart. The tube should be viewed in a well-lit area against the white area of the chart. The closest match indicates the pH of the water sample. Rinse the test tube with clean water after use.

Recommended pH Levels

A pH of 7.5 is ideal for most live-bearing fish, such as mollies & swordtails. Goldfish will also thrive at a pH of 7.5. African cichlids prefer a pH of 8.2. Marine fish & invertebrates require a pH between 8.2 – 8.4. To raise or lower the pH of a freshwater aquarium, use API pH UP or pH DOWN. Also, API PROPER pH 7.5 may be used to automatically adjust & hold pH at 7.5. PROPER pH 8.2 may be used in African cichlid and saltwater aquariums.

Ammonia Test

Why Test for Ammonia?

Fish continually release ammonia (NH_3) directly into the aquarium/pond through their gills, urine, and solid waste. Uneaten food and other decaying organic matter also add ammonia to the water. A natural mechanism exists that controls ammonia in the aquarium/pond – the biological filter. However, as with any natural process, imbalances can occur. So, testing for the presence of toxic ammonia is essential. Ammonia in the aquarium/pond may damage gill membranes, and prevent fish from carrying on normal respiration. High levels of ammonia quickly lead to fish death. Even trace amounts stress fish, suppressing their immune system and increasing the likelihood of disease. Using API QUICK START® will help accelerate the development of the biological filter.

Testing Tip:

This salicylate-based ammonia test kit reads the total ammonia level in parts per million (ppm) [equivalent to milligrams per liter (mg/L)] from 0 - 8.0 ppm (mg/L).

Directions

1. Fill a clean test tube with 5 ml of water to be tested (to the line on the tube).
2. Add 8 drops from Ammonia Test Solution #1, holding the dropper bottle upside down in a completely vertical position to assure uniformity of drops.
3. Add 8 drops from Ammonia Test Solution #2, holding the dropper bottle upside down in a completely vertical position to assure uniformity of drops.
4. Cap the test tube & shake vigorously for 5 seconds.
5. Wait 5 minutes for the color to develop.
6. Read the test results by comparing the color of the solution to the Ammonia Color Chart. The tube should be viewed in a well-lit area against the white area of the chart. The closest match indicates the ppm (mg/L) of ammonia in the water sample. Rinse the test tube with clean water after use. Note: Do not pour test tube contents back into the aquarium.

Reducing Ammonia Levels

In a new aquarium or pond the ammonia level may rise and then fall rapidly as the biological filter becomes established. The ammonia will be converted to nitrite (also toxic), then to nitrate. This process may take several weeks. It is recommended to use API QUICK START to help establish the biological filter, lower ammonia and nitrite, and reduce the risk of fish loss. In an established aquarium, the ammonia level should always remain at 0 ppm (mg/L); any level above 0 can harm fish. To reduce risk of fish loss, if ammonia levels continue to test high in your aquarium or pond (4 ppm or mg/L), perform a water change of 25% or more, then add API AMMO LOCK® to quickly detoxify ammonia. AMMO LOCK will convert ammonia to a non-toxic form. The Ammonia test kit will still test positive for ammonia, even though treating with AMMO LOCK has made it non-toxic. A daily water change may be required over several days. Be sure to use a water conditioner, such as STRESS COAT®, when adding tap water back into the aquarium.

Nitrite Test

Why Test For Nitrite?

Nitrite (NO_2^-) is produced in the aquarium/pond by the biological filter. Beneficial bacteria in the biological filter convert ammonia into nitrite. The biological filter then converts nitrite into nitrate (NO_3^-). Nitrite in the aquarium/pond is toxic; it will prevent fish from carrying on normal respiration, and high levels will quickly lead to fish death. Even trace amounts of nitrite stress fish, suppressing their immune system and increasing the likelihood of disease. Too many fish, as well as uneaten fish food and decomposing plants and other organic matter can cause excessive nitrite levels. Water should be tested for nitrite every other day when the aquarium/pond is first set up, and once a week after the biological filter has been established (in about 4 - 6 weeks). Using API QUICK START will help accelerate the development of the biological filter.

Testing Tips

This test kit reads total nitrite (NO_2^-) level in parts per million (ppm) which are equivalent to milligrams per liter (mg/L) from 0 - 5.0 ppm (mg/L).

Directions

1. Fill a clean test tube with 5 ml of water to be tested (to the line on the tube).
2. Add 5 drops of Nitrite Test Solution, holding dropper bottle upside down in a completely vertical position to assure uniformity of drops.
3. Cap the test tube and shake for 5 seconds.
4. Wait 5 minutes for the color to develop.
5. Read the test results by comparing the color of the solution to the Nitrite Color Chart. The tube should be viewed in a well-lit area against the white area of the chart. The closest match indicates the ppm (mg/L) of nitrite in the water sample. Rinse the test tube with clean water after use.

What the Test Results Mean

In new aquariums/ponds the nitrite level will gradually climb to 5 ppm (mg/L) or more. As the biological filter becomes established, nitrite levels will drop to 0 ppm (mg/L). In an established aquarium, the nitrite level should always remain at 0; any level above 0 can harm fish. The presence of nitrite indicates possible over-feeding, too many fish, or inadequate biological filtration.

Reducing Aquarium Nitrite Levels

Add API NITRA-ZORB®/AQUA DETOX to the aquarium filter to remove nitrite from freshwater aquariums. Making partial water changes can also help reduce nitrite, especially if the initial level is very high. Use API QUICK START to help speed the development of the biological filter. Adding API AQUARIUM SALT will reduce nitrite toxicity to fish while the biological filter is removing the nitrite

Nitrate Test

Why Test for Nitrate?

Nitrate (NO_3^-) is produced in the aquarium by the biological filter. Beneficial bacteria in the biological filter convert toxic ammonia and nitrite into nitrate. A high nitrate level indicates a build-up of fish waste and organic compounds, resulting in poor water quality and contributing to the likelihood of fish disease. Maintaining a low nitrate level improves the health of fish & invertebrates. Excessive nitrate also provides a nitrogen source that can stimulate algal blooms. Aquarium water should be tested for nitrate once a week to make sure the nitrate does not reach an undesirable level.

Testing Tip:

This test kit reads total nitrate (NO_3^-) level in parts per million (ppm) which are equivalent to milligrams per liter (mg/L) from 0 - 160 ppm.

Directions

1. Fill a clean test tube with 5 ml of water to be tested (to the line on the tube).
2. Add 10 drops from Nitrate Test Solution #1, holding dropper bottle upside down in a completely vertical position to assure uniformity of drops.
3. Cap the test tube & invert tube several times to mix solution.
4. Vigorously shake the Nitrate Test Solution #2 for at least 30 seconds. This step is extremely important to insure accuracy of test results.
5. Now add 10 drops from Nitrate Test Solution #2, holding dropper bottle upside down in a completely vertical position to assure uniformity of drops.
6. Cap the test tube and shake vigorously for 1 minute. This step is extremely important to insure accuracy of test results.
7. Wait 5 minutes for the color to develop.
8. Read the test results by comparing the color of the solution to the Nitrate Color Chart. The tube should be viewed in a well-lit area against the white area of the card. The closest match indicates the ppm (mg/L) of nitrate in the water sample. Rinse the test tube with clean water after use.

What the Test Results Mean

In new aquariums the nitrate level will gradually climb as the biological filter becomes established. A nitrate level of 40 ppm (mg/L) or less is recommended for freshwater aquariums. In marine aquariums, it is best to keep nitrate as low as possible, especially when keeping invertebrates.

Reducing Nitrate Levels

Add API NITRA-ZORB® / AQUA-DETOX to the filter to remove nitrate from freshwater aquariums. Making partial water changes can also help reduce nitrate, especially if the level is very high. However, because many tap water supplies contain nitrate, it can be difficult to lower nitrate levels by this method.