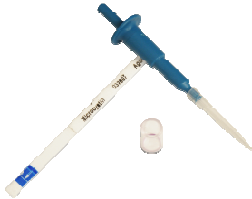


CONTENTS

Your Microcystin ImmunoStrip® kit (ISK 84300) contains the following:



- ImmunoStrips® stored in a tube with desiccant (8 or 48 depending on size)
- Reaction Vials stored in a pouch with desiccant (8 or 48 depending on size)
- Vial caps (8 or 48 depending on size)
- One (1) test user guide

Materials required but not provided: Sold as an Accessory Kit (ACC 00490) or separately.

- 100µl micropipette (included in ACC 00490 or sold separately as ACC 00770/0100)
- 200µl wide mouth micropipette tips, boxed (included in ACC 00490 or sold separately as ACC 00308)
- Reaction vial holder (included in ACC 00490 or sold separately as ACC 00530)
- Sample collection and extraction vials (glass) (Sold separately ACC 00648)
- Device to boil water

STORAGE

Refrigerate
4 °C to 6 °C

- When not in use, ImmunoStrips® and Reaction Vials should be tightly sealed within their containers with desiccant at all times.
- The test kit should be stored in a refrigerator (4 °C to 6 °C) when not in use. All non-biological components can be stored at room temperature (i.e. pipette, tips, etc).
- Warm all test kit components to room temperature before use.

SAFETY



Microcystins are hepatotoxins and are considered hazardous to humans. Cyanobacteria (blue-green algae) can also produce other toxins known to cause detrimental physiological conditions in mammalian species. Therefore, protective gloves and garments should always be worn when handling samples to minimize exposure to potentially toxic substances.

INTENDED USE

Microcystins have become a growing concern for the public and private sectors due to the known harmful impacts to aquatic and mammalian species. Water sources containing free microcystin-LR concentrations between or greater than 10ug/L to 20ug/L are commonly referred to as hazardous to humans and pets for recreational use.



The Microcystin ImmunoStrip® kit is intended to provide users with an on-site screening tool for the presence of microcystin in fresh water. It is capable of assessing whether or not the concentration of microcystin-LR in a sample is within a low risk category or is approaching a moderate to high risk category. The Microcystin ImmunoStrip demonstrates reliable detection of other microcystin variants (where analytical standards were available); however, the test sensitivity is solely based on microcystin-LR.

The test is formatted to operate as a rapid competitive immunoassay. Similar to a drugs-of-abuse assay, the Microcystin ImmunoStrip® will NOT produce a line if the sample is positive. A test line will only appear with negative samples or samples that contain microcystin-LR at a concentration under high risk levels. In the case of a positive sample, the test line will reduce in intensity as the concentration of any microcystin in a sample increases.

TEST PROCEDURE

Sample Preparation



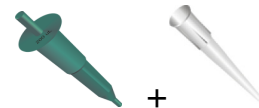
1. Samples should be boiled prior to testing. The most efficient method of boiling is by using a microwave; however, other methods such as hotplates, stoves, etc may be used. If using a method other than microwaving, make sure the vessel you are using to boil the sample is designed for such uses (e.g. tempered glass beaker, etc).
2. Dispense about 500µl, using the 100µl pipette and tip (5 times), of sample into an Agdia extraction vial (ACC 00648). Do not add over 1ml of sample; otherwise the sample will boil over. Do not insert the stopper until after the sample has been boiled.
3. Microwave (high) or heat sample until it boils. Boil for 1 minute.
4. Allow the sample to cool so that it can be handled safely before testing.

NOTE: Always use caution when boiling samples. Agdia recommends using heat resistance gloves when handling samples that have been heated. Always use safe laboratory practices.

ImmunoStrip® Test Instructions

1. Firmly push one of the pipette tips included in the kit onto the 100µl pipette. The tip should not fall off when it is on correctly. Change tips between samples.

* Warm kit components (ImmunoStrips and Reaction Vials) to room temperature before opening.



*Pipette and Tips are included in accessory kit or can be purchased separately.

2. Press the movable button of the pipette completely down. Insert the tip in the **extracted sample** and draw up the liquid into the tip by slowly removing pressure on the movable button. Make sure there are no air bubbles in the sample. Dispense the liquid (100µl) in the tip by inserting the pipette tip into the Reaction Vial and depressing the moveable button. Do this only once for each sample



3. Apply the vial cap to the Reaction Vial. Grasp the vial with one finger touching the cap and the other touching the bottom of the vial. Shake the vial vigorously for 1 minute. Do NOT flick vials or shake in a manner that causes sample spillage. Place the vial in the reaction vial holder (included in accessory kit) or a piece of foam to prevent tipping.



shake for 1 minute

4. Remove the vial cap and allow the sample to incubate 10 minutes prior to inserting an ImmunoStrip®.

10 minute incubation



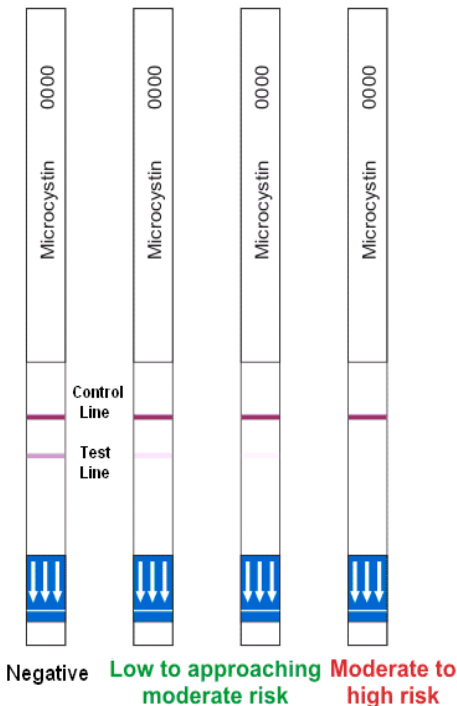
- Carefully insert the ImmunoStrip® into the vial with the arrows facing down. Allow the test to run for a full 25 minutes. Do not interpret results until the test is complete.
- After 25 minutes the ImmunoStrip® may be removed and results can be interpreted. See the diagram in the **RESULTS** section for instruction on how test results should be interpreted.

NOTE: ImmunoStrip® test and Reaction Vial lots are quality controlled as a matched set. Only use ImmunoStrips® and Reaction Vials with matched lot numbers.



RESULTS

Results should be interpreted after the test has run for 25 minutes. The control line assures that the test is working properly. If the control line does not appear, the test is invalid and the sample should be re-tested. If two or more results are invalid for a single sample, the sample should be tested by another method. See the test limitations section for a list of compounds that are known to interfere with the test.



Moderate to High Risk

When a test line is not visible, it should be interpreted that the concentration of microcystin is greater than 15µg/L for microcystin-LR. The WHO (World Health Organization) moderate risk guideline value for microcystin-LR in recreational water sources is 20µg/L.

Low to Approaching Moderate Risk

When a test line is visible, and weaker than the negative reference strip, it should be interpreted that the concentration of microcystin-LR in the sample presents a low to approaching moderate risk situation (1 to 14µg/L) for Microcystin-LR.

NOTE:

The intensity of the test line that is visible is directly related to the amount of microcystin in the sample. A darker test line means that less microcystin is in the sample. A lighter line means that more microcystin is in the sample. See the illustration to the left for an example of microcystin-LR results. Always test a distilled water sample for a negative reference standard.

It is important to understand that the interpretation of this test is solely based on the user's ability to see a test line. In the case of samples that contain microcystin-LR at levels of 10µg/L to 15µg/L, it may be difficult for some users to see a test line depending on their vision. Any time a sample is suspected of containing potentially toxic levels of microcystin, it is recommended that further analysis be completed and a precautionary warning be issued, especially if a bloom is present. Cyanobacterial blooms also produce other toxins such as: domoic acid, okadaic acid, cylindrospermopsin, and anatoxin-a. These are NOT detected by this test.



LIMITATIONS

The following is a description of factors that could limit test performance or interfere with proper test results.

- Expiration: ImmunoStrips® and Reaction Vials should be used prior to the expiration date indicated on the packaging label.
- Warm kit components to room temperature before use. Moisture can build up in storage containers if they are opened immediately after refrigeration. Excessive moisture will decrease the shelf life of the test kit.
- ImmunoStrips® and Reaction Vials are quality controlled as a matched set. Only use ImmunoStrips® and Reaction Vials with the same lot number.
- Performance: This test is intended to provide users with a qualitative result. If your test result is positive it should not be construed that there is an exact concentration of microcystin toxin in the sample. Quantitative results should be obtained using a validated quantitative method such as HPLC or ELISA. Depending on your monitoring process, further analysis may be required on positive samples, or samples suspected of being positive, prior to issuing any public or private warnings about water quality.
- Temperature: Optimal test results will occur when the test is run in an environment where the temperature is between 60° and 95° F (15° and 35° C).
- Storage: Test results may be weak or the test may fail if the storage instructions are not followed properly. If the package is left open too long, the ImmunoStrip® may absorb moisture. This may affect test results. It is recommended that you close all kit containers immediately after removing components. (Bottles, pouches, etc.)
- Sample volume: ImmunoStrip® performance is very dependent on the proper sample volume. The ImmunoStrip® will not perform according to specifications with a volume other than 100µl.
- Sample handling: Agdia does not recommend using preservatives in samples prior to testing. If it is necessary for you to use preservatives because the sample is being tested for analytes other than microcystin, we recommend that you pull off a sub-sample prior to adding the preservative. Some preservatives that contain acids and other chemicals will cause the test to be invalid.
- The following compounds have been found to interfere with test results when present at high concentrations in water samples:
 - Calcium carbonate (> 0.5M)
 - Calcium sulfate (> 0.5M)
 - Potassium phosphate (> 0.25M)
 - Ammonium sulfate (> 0.25M)
 - Ammonium nitrate (>0.5 M)
 - Magnesium chloride (> 30mM)
 - Magnesium sulfate (> 0.25M)
 - Potassium chloride (> 0.5M)
 - Zinc chloride (> 15mM)
 - Zinc sulfate (>15mM)
 - Copper sulfate (> 0.5M)
 - Ascorbic acid (> 0.001M)

Technical Assistance

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