Microcystins and Cylindrospermopsin in Drinking Water Sample Collection, Treatment, Preparation, Storage and Transportation

1. Intended Use

For the collection, treatment/preservation (quenching), preparation, storage, and transportation of drinking water samples (treated and untreated) to be analyzed using the ABRAXIS® Microcystins ELISA Kits and the ABRAXIS® Cylindrospermopsin ELISA Kit.

Note: This guidance is not intended to replace local, state or federal requirements.

2. Sample Collection

Collect at least 100 mL of water samples and store in clear or amber **glass or polyethylene terephthalate (PETG)** sample containers.

Note: Samples to be tested for Cylindrospermopsin only can also be stored in high density polyethylene (HDPE), polycarbonate (PC), polypropylene (PP), or polystyrene (PS) containers, but the use of plastic collection and/or storagecontainers other than PETG for samples to be tested for Microcystins may result in adsorptive loss of Microcystins, producing inaccurate (falsely low) results.

3. Sample Treatment/Preservation

- Immediately upon collection, finished (treated) drinking water samples must be preserved (quenched) to remove residual chlorine, as contact with chlorine will degrade toxins, producing inaccurate (biased low) sample results. Samples to be tested for Cylindrospermopsin can be quenched with sodium thiosulfate or ascorbic acid. Samples to be tested for Microcystins must only be quenched with sodium thiosulfate. Do **not** use ascorbic acid to quench samplesto be tested for Microcystins, as ascorbic acid may adversely affect Microcystins, potentially producing inaccurate (biased low) sample results.
- For analysis using the ABRAXIS® Microcystins-ADDA or ABRAXIS® Microcystins-DM ELISA kits, samples can be quenched with sodiumthiosulfate at concentrations up to and including 1 mg/mL. For analysis using the ABRAXIS® Cylindrospermopsin ELISA kit, samples can be quenched with sodium thiosulfate or ascorbic acid at concentrations up to and including 1 mg/mL.
- The quenching of residual chlorine is necessary for treated water samples only. Raw (untreated) drinking water samples (samples not treated with chlorine) do not require additional reagents at the time of collection.

4. Sample Storage/Transportation

Samples can be stored refrigerated for up to 5 days. If samples must be held for greater than 5 days, samples shouldbe frozen. If samples are to be shipped, they should be shipped overnight, on ice.

5. Notes and Precautions

To prevent matrix interference during analysis, sample pH must be within the range of 5 – 11. Samples with pH levelsoutside of this range may produce inaccurate (falsely low) results and should be adjusted as necessary, using hydrochloric acid (HCl) or sodium hydroxide (NaOH), prior to analysis.

6. Sample Lysing

To determine total Microcystins or total Cylindrospermopsin concentration (free and cell-bound), samples must be lysed prior to analysis. Samples may be chemically lysed using ABRAXIS® QuikLyse™* (please see the ABRAXIS® QuikLyse™* users guide for additional information) as an alternative to the freeze/thaw method described below. (*ABRAXIS® QuikLyse™ reagentsmay be used in a method of U.S. Patent

9,739,777.)

Note: The use of sonication in cell lysing can negatively affect toxin concentrations, producing falsely low sample results.

To lyse samples using the freeze/thaw method:

6.1 Shake the sample thoroughly. Add 1 mL of sample to an appropriately labeled glass vial.

Note: Sample volume should be increased to 2 mL if using the ABRAXIS® Cyanotoxin Automated Assay System (CAAS) or CAAS Cube to ensure adequate sample volume for automated pipetting.

6.2 Place the vial, lying on its side, in a freezer (< 0ºC) until completely frozen (approximately 1 hour, depending on freezer temperature).

Note: The vial should be placed on its side to allow for expansion of the water sample as it freezes, therefore decreasing the potential for vial breakage.

6.3 Remove the sample from the freezer and allow it to thaw completely (no visible ice crystals remaining in the sample). The sample may be placed in a room temperature or up to 37ºC water bath to thaw more rapidly.

6.4 Repeat steps 6.2 and 6.3 for an additional two cycles (for a total of three freeze/thaw cycles).The sample is now ready to analyze. Please see the appropriate user's guide for sample analysis procedures.

7. For ordering or technical assistance contact:

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124 Railroad Drive
Warminster, PA 18974
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