

Biomass ATP Kit

ATP Biomass Test Kit for 3M™/Biotrace™ Systems

Part No: BMK3M100

Description/ Intended Use:

Hygiena Biomass ATP Kit is a high-precision ATP (adenosine triphosphate) detection assay for liquid samples. The kit is used to rapidly assess efficiency of biocide treatments on process and waste water(s) and organic activity in water tanks and cooling towers. It can also be used to assess standards of hygiene and sanitation procedures for equipment and efficiency of Clean in Place (CIP) systems. Biomass ATP kit has been designed to handle samples that are high-quenching or contain particulates or fibers. Kit is designed to replace Cleantrace Multitrace Kit used in 3M™/Biotrace™ luminometers.

Principle:

Biomass ATP Kit is based on measurement of total and free ATP in samples using bioluminescent reagents. Total ATP is a measurement of all ATP contained in a sample. This includes both intra-cellular and extra-cellular ATP. Free ATP, sometimes referred to as extra-cellular ATP, is ATP in a sample from dead or unhealthy biomass. Assaying free ATP provides information regarding relative health of biomass. As biomass becomes unhealthy or dies, it releases ATP into the external environment. Therefore, higher free ATP is a direct result of biomass mortality. The difference in total ATP and free ATP in a sample indicates bioload or amount of ATP from living organisms.

Materials Provided:

Biomass Kit contains sufficient reagents for 100 tests with each component supplied in units of 10 tests.

- **10 bottles liquid-stable reagent**, (Bottle # 1), provided in plastic screw-cap bottle with a red cap
- **10 bottles buffer**, (Bottle # 2), provided in plastic screw-cap bottle with a white cap
- **10 bottles extractant**, (Bottle # 3), provided in plastic screw-cap bottle with a blue cap
- **1 vial of ATP Positive Control**
- **100 sample cuvettes**

Required Materials (Not Included):

- Luminometer
- Hold-Rite Applicator (HR001)
- Pipette and tips for 100µL volume

Preparation:

1. Remove adequate number of bottles of each reagent, buffer and extractant from kit box based on number of tests to be performed (1 bottle=10 tests).
2. Return remainder of kit to refrigerator.
3. Pour contents of reagent bottle (red cap, Bottle #1) into buffer bottle (white cap, Bottle # 2). Swirl bottle to ensure mixing of working reagent. Pour back into reagent bottle (red cap, Bottle #1). Label bottle (now working reagent) with current date.
4. Allow 10 minutes for mixed working reagent and extractant to reach room temperature before use (21 – 25 °C).

Total ATP Procedure:

1. Before processing test, turn on luminometer.
2. Using a sterile pipette tip, add 100µl of sample into cuvette.
3. Using a new pipette tip, pipette 100µL of extractant (Blue cap, Bottle # 3) into sample cuvette.
4. Mix gently for 3 – 5 seconds.
5. Let stand for a minimum of 60 seconds.
6. Using a new pipette tip, pipette 100µL of working reagent into sample cuvette.
7. Mix gently for 3 – 5 seconds.
8. Attach cuvette to Hold-Rite Applicator and insert into instrument chamber.
9. Holding luminometer upright, close lid and initiate measurement.
10. When testing is completed, cap bottles and return unused reagents to refrigerator.

Free ATP Procedure:

1. Before processing test, turn on luminometer.
2. Using a sterile pipette tip, add 100µl of sample into cuvette.
3. Using a new pipette tip, pipette 100µL of working reagent into sample cuvette.
4. Mix gently for 3 – 5 seconds.
5. Attach cuvette to Hold-Rite Applicator and insert into instrument chamber.
6. Holding luminometer upright, close lid and initiate measurement.
7. When testing is completed, cap bottles and return unused reagents to refrigerator.

Negative ATP Control:

Negative control reading may be obtained using a sample of ATP-free water. Follow procedure above for Total ATP using a sample of ATP-free water or rinse water.

Positive ATP Control:

A Positive ATP control test can be performed to check storage/shipping conditions of kit reagents.

1. In a cuvette, pipette 100µl sterile water, 100µl of extractant, 100µl ATP Positive Control, and 100µl of working reagent using a new pipette tip for each material.
2. Mix gently for 3 – 5 seconds.
3. Attach cuvette to Hold-Rite Applicator and insert into instrument chamber.
4. Holding luminometer upright, close lid and initiate measurement.
5. RLU value should be greater than 20,000 RLU.

Interpretation of Results:

1. The higher the RLU number, the more ATP in the sample.
2. Occasionally, free ATP will be greater than total ATP result. This occurs shortly after biocides or chemicals are added to water, killing organisms and exposing cellular ATP to the environment, thereby increasing free ATP.
3. It is recommended to set pass/fail levels so action can be taken. Determining pass/fail levels is sample-specific. A common way to determine levels is by running free and total ATP tests along with standard method micro plates. Once an acceptable level of correlation between the two methods is established, pass/fail levels can be set. For more information on setting pass/fail levels, refer to www.hygiena.com or contact a Hygiena representative.
4. For cooling or process water, establish a baseline RLU value over time by the same process described above. This baseline can then be used to identify abnormal readings, seasonal variations, and patterns of contamination that may occur with various treatment methods.

Safety & Precautions:

Follow standard Good Laboratory Practices where appropriate.

- Use a fresh, clean ATP-free pipette tip for each sample pipetting.
- Avoid contamination by ATP. Avoid touching reagent with bare hands and handling parts of cuvettes and reagent vials that come into direct contact with sample and/or reagent.
- Do not use reagent without mixing with buffer to make working reagent.
- Do not use working reagent past 7 days after mixing.

For further safety instruction, refer to Safety Data Sheet (SDS).

Storage & Shelf Life:

- Store at 2 – 8 °C (36 – 46 °F)
- Do not freeze.
- Kit has a 12 month shelf life. Check expiration date on label.
- Once reagents are mixed, working reagent has a 7-day shelf life at refrigerated temperatures 2 – 8 °C (36 – 46 °F)

Disposal:

Used devices are not a biohazard and may be discarded as trash.

Hygiena Liability:

Hygiena will not be liable to user or others for any loss or damage whether direct or indirect, incidental or consequential from use of this device. If this product is proven to be defective, Hygiena's sole obligation will be to replace product or at its discretion, refund the purchase price. Promptly notify Hygiena within 5 days of discovery of any suspected defect and return product to Hygiena. Please contact Customer Service for a Returned Goods authorization number.

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