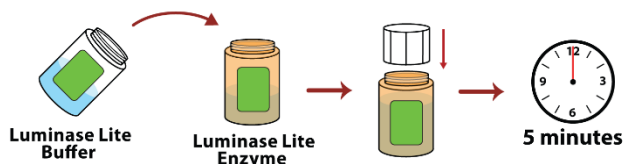


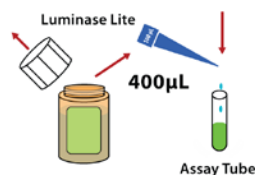
REHYDRATING LUMINASE

- Gently mix the buffer and **Luminase Lite** enzyme.
- Wait 5 minutes for solution to dissolve.

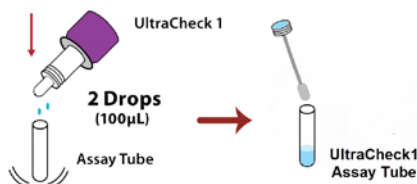


1. CALIBRATION (RLU_{ATP1})

- Using a new pipette tip, add 400µL of **Luminase Lite** into a 12x55mm test tube (the Assay tube).



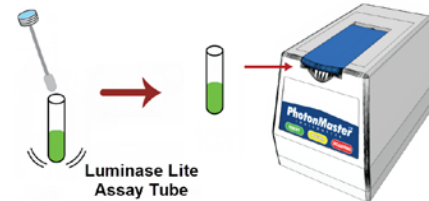
- Using a new 12x55mm Assay tube, hold the **UltraCheck1** bottle vertical, add 2 drops (100µL).
- Using a new sterile swab, dip the swab into the **UltraCheck1** assay tube until the liquid is fully absorbed onto the swab.



- Remove the swab and dip into the assay tube containing the 400µL of **Luminase Lite**, and gently swirl for 3 seconds. Remove swab and immediately insert the **Luminase Lite** assay

tube into the luminometer and measure.

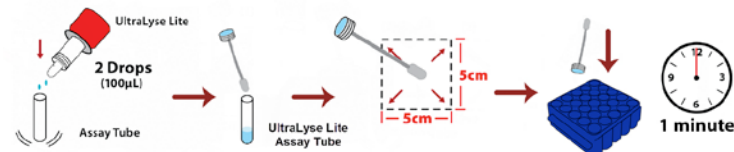
Record RLU_{ATP1}



2. TOTAL ATP ANALYSIS (RLU_{tATP})

2.1 EXTRACTION

- Holding the bottle vertical, add 2 drops (100µL) of **UltraLyse Lite** into a new 12x55mm Assay tube. Using a new sterile swab, dip the swab into the **UltraLyse Lite** assay tube until the liquid has been fully absorbed onto the swab.
- Swab an approximately 5x5cm (2x2in) surface area, and incubate the swab for 1 minute by placing it (swab side facing up) into an assay tube rack.

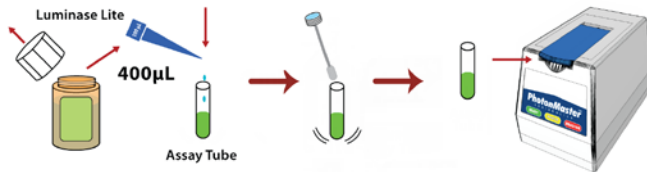


2.2 ASSAY (RLU_{tATP}) (can be set up during the 1-minute incubation period)

- Using a new pipette tip, add 400 µL of **Luminase Lite** to a new 12x55mm Assay tube.

- When the 1-minute incubation time is complete, insert the swab into the into the **Luminase Lite** Assay tube and gently swirl for 3 seconds.
- Remove the swab and immediately insert the assay tube into the luminometer and measure.

Record RLU_{tATP}



CALCULATIONS

To automatically calculate ATP, use **LuminUltra Cloud**.

Total ATP (tATP) measures all ATP within a sample, including ATP from living cells and ATP that has been released from dead cells.

$$tATP (pg\ ATP/mL) = \frac{RLU(tATP)}{RLU(ATP1)} \times 1,000 (pg\ ATP/mL) \times Area(cm^2)$$

Interpretation Guidelines

ATP-based measurements are extremely sensitive to changes in total microbial quantity. In general, processes will have the best microbial control when **tATP is minimized**.

When utilizing ATP test kits it is important to remember that every process is different. During **audits**, relative comparisons from point to point are a reliable means to assess your process, while for **daily monitoring** it is important to establish a baseline trend before making control decisions.

To get started, LuminUltra provides the following guidelines in units of **pg tATP/mL**.

Application	Good Control (pg tATP/mL)	Preventive Action (pg tATP/mL)	Corrective Action (pg tATP/mL)
Potable & Sanitary Water	<10	10 to 1,000	>1,000
Raw, Cooling & Process Water (Oxidizing Biocide)	<100	100 to 10,000	>10,000
Cooling, Process, Bottom & Oilfield Water (Non-Oxidizing Biocide)	<1,000	1,000 to 100,000	>100,000
Bulk Fluid-to-BioFilm Ratio	<10x	10x to 100x	>100x

NOTE: These interpretation guidelines are designed for generic risk management guidance **only**. Users are encouraged to establish their own control ranges on which to base process decisions. LuminUltra and its affiliates do not accept any liability for any decision or assessment taken or made as a consequence of using this test kit.