Frasers AEROSPACE

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A Guide to ATP Hygiene Monitoring

Bacoban® For Aerospace

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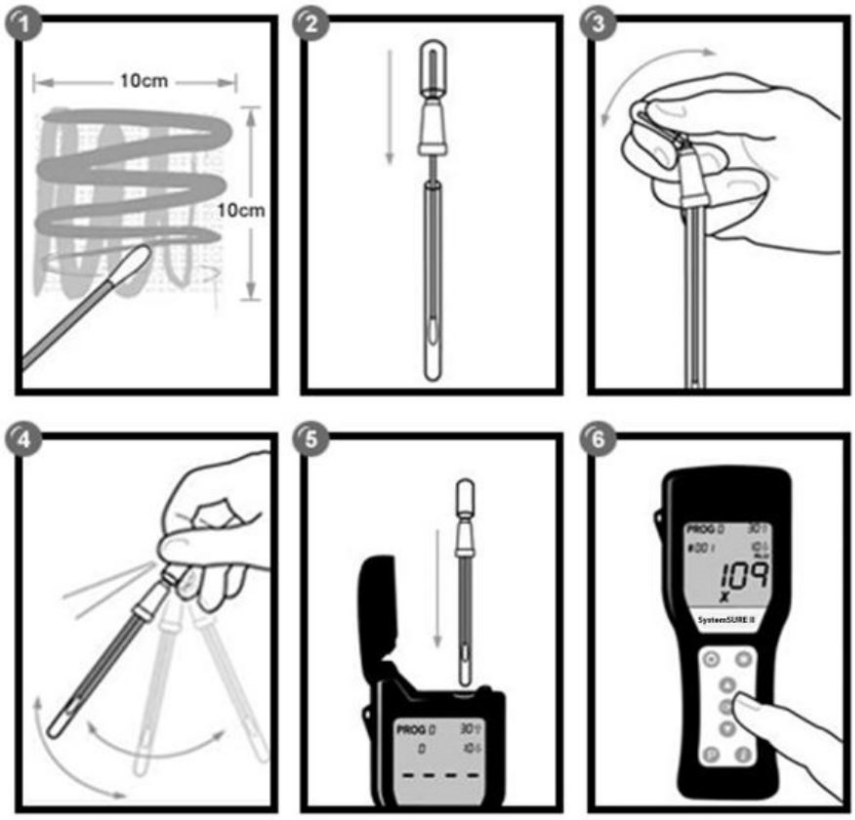
What is ATP testing?

Adenosine Triphosphate, or ATP, is the energy molecule found in all living and once-living things, making it a perfect indicator when trying to determine if a surface is clean or not. With an ATP hygiene monitoring system, ATP is brought into contact with a unique liquid-stable reagent in the test device. Light is then emitted in direct proportion to the amount of ATP present in the sample and read in the measuring device, providing information on the level of contamination in seconds.

ATP testing devices contain a natural enzyme found in fireflies. This enzyme, called luciferase, produces a simple bioluminescence (light-producing) reaction when it comes into contact with ATP. Using bioluminescence technology, the luminometers can measure extremely low levels of ATP collected with testing devices. Measuring the amount of bioluminescence from an ATP reaction provides an excellent indication of surface cleanliness or water quality because the quantity of light generated by the reaction is directly proportional to the amount of ATP present in the sample. The bioluminescence reaction is immediate so results can be processed at the testing site in seconds. Results are expressed numerically on the luminometer screen in Relative Light Units (**RLU**).

Quick Start Guide

Proper Sampling Procedure



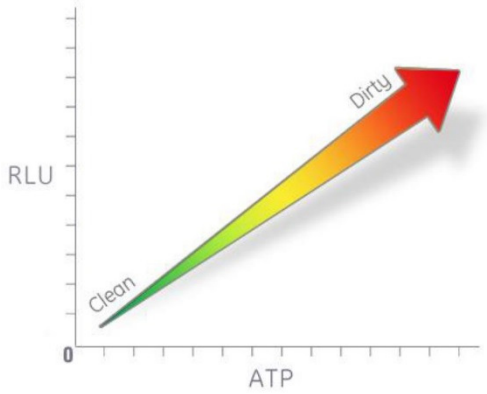
- Identify the location to be tested and turn on the luminometer. Select the test location from the programmed locations. Remove the ATP testing device from the outer tube. If conducting a

surface test, press firmly down on the swab tip and collect a sample from a 10 x 10 cm (4 x 4 in) area. Use a side-to-side and up-and-down motion while rotating the swab tip.

- Place the swab back into the swab tube. The ATP testing device is now ready to be activated or can be left inactive for up to 4 hours. Once activated, the test must be read within 60 seconds.
- To activate, break the plastic valve at the top of the device by bending the bulb backward and forward. Squeeze the bulb twice to expel the liquid in the bulb to the bottom of the tube.
- Bathe the swab bud in the liquid by shaking gently in a side-to-side motion for 5-10 seconds.
- Place the entire test device into the luminometer and close the lid.
- Holding the luminometer in a vertical position,

Interpreting results on the luminometer

The relationship between the amount of ATP collected in a sample and the RLU result displayed on the luminometer is linear, which makes understanding the technology very easy.
The RLU reading is directly proportional to the amount of ATP collected from the sample. A high RLU reading indicates a large amount of ATP at the test location. This in turn indicates improper cleaning and the presence of potential contaminants.
Cleaning properly results in less ATP at the location. Lower ATP levels produce smaller amounts of light output during the bioluminescence reaction and consequently, a lower RLU reading.



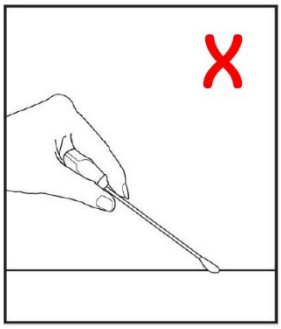
Collecting samples with the testing device

1. Remove the testing device from the pouch. Next, remove the outer tube by holding onto the double ring base of the Snap-Valve while pulling down on the tube. The swab tip comes pre-moistened with an extractant that breaks through biofilm on test surfaces. Condensation may be visible on the inside of the swab tube. This is normal. **Do not touch the swab tip or shaft with fingers or anything else, as this will contaminate the test.** Discard any swabs that accidentally get contaminated or activated.
NOTE: For optimal performance, swabs that have been removed from cold storage should stand for 10 minutes at room temperature before use.

2. Collect a sample using the guidelines below. The test device is designed to detect trace amounts of contamination. Collecting a sample on a visibly dirty surface may interfere with the bioluminescence reaction and produce an inaccurate test result.

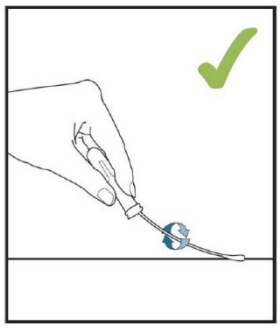
Incorrect swabbing technique:

- Touching the swab shaft with your finger.
- Lightly touching the swab to the sample area.
- Collecting sample on only one side of swab tip.
- Swabbing an inadequate surface area.

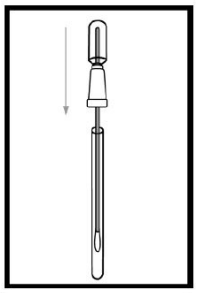


Correct swabbing technique:

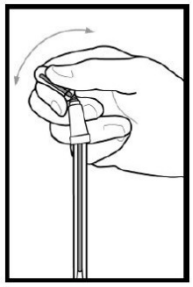
- No contact with the swab shaft.
- Sufficient pressure to create flex in the swab shaft. This helps to break through any biofilm.
- Rotate the swab to collect sample on all sides of swab tip.
- Swabbing a 10x10 cm (4x4 in) area (where possible).



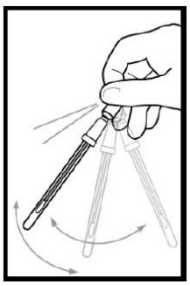
3. Re-insert the swab into the tube. The test device is now ready to be activated. A test with an active sample on it can be left inactivated for **up to 4 hours** in this state. In some facilities, users prefer to sample each location, write the sample location on the swab tube, and run all tests in a laboratory rather than at the test location. The most common process is to activate and read the test immediately after collecting the sample.



4. Holding the device upright, activate the test device by bending the bulb at the top until the Snap-Valve breaks, then bend once more in the opposite direction. Squeeze the bulb twice to expel the liquid-stable reagent contained in the bulb and allow it to flow to the bottom of the tube.

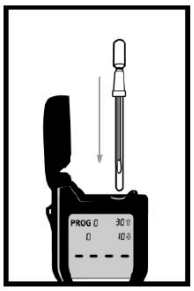


5. Gently shake the device with a side-to-side motion for 5- 10 seconds, bathing the swab bud in the liquid-stable reagent. The test is now activated and the bioluminescence reaction is taking place. **For optimal results, the test should be run on the luminometer as soon as possible, and within 60 seconds of activation.**



Measuring ATP with luminometers

1. Open the lid on the luminometer and insert the activated testing device into the reading chamber. Close the lid, making sure to **keep the machine in an upright position**.



2. Press “OK” to initiate measurement. Results are displayed on the screen in 15 seconds.

Typical RLU limit guidelines

Guidelines for a typical passenger jet may vary from operator to operator, however using industry standards in medical, food service, restaurants etc, a recommended RLU limits should be:

PASS <10

CAUTION 10-30

FAIL >30

Frasers Aerospace recommend using the SystemSURE Plus ATP measuring device.

More details are available from their website www.hygiena.com