

# ATP Monitoring: Measuring the Effectiveness of Your Sanitation Procedures

Adenosine Triphosphate (ATP) test kits can help you measure the effectiveness of your sanitation procedures. Visual inspections to monitor the cleanliness of your facility are subjective. ATP monitoring provides an objective procedure to determine if your sanitation procedures are effectively cleaning the surfaces in your facility.

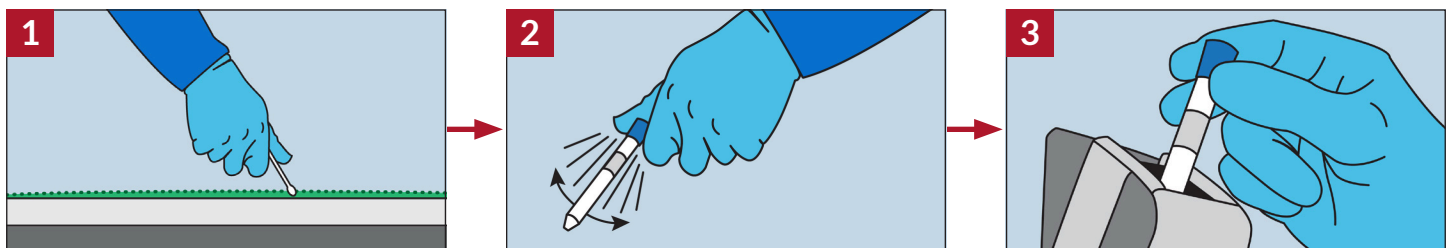
## How do ATP tests verify your cleaning program is effective?

ATP tests measure the amount of organic matter (specifically ATP) found on a surface. Organic matter comes from a recently living organism. It could originate from plants, animals or microorganisms. When produce is harvested or packed, organic matter is left behind on food contact surfaces. Cleaning helps to remove this organic matter. After cleaning food contact surfaces, you can use ATP testing to verify the surfaces do not have any residual organic matter.

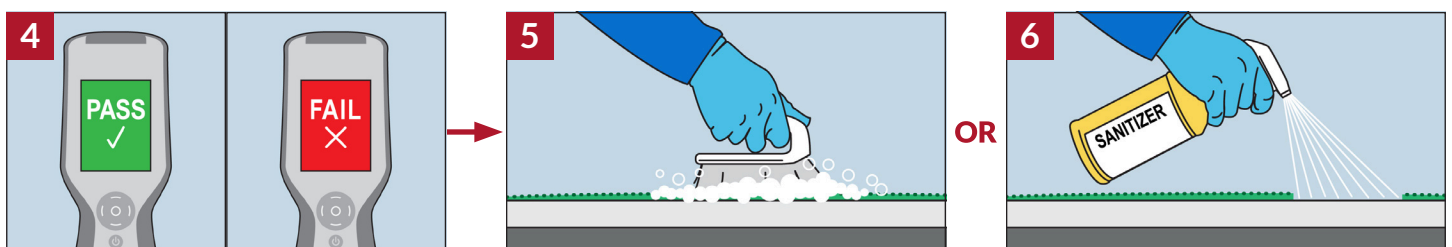
**As a reminder, you cannot sanitize a dirty surface, so it is important to remove the organic matter from all food contact surfaces on your farm or in your packing house. ATP tests will provide evidence that your food contact surfaces were in fact cleaned.**

## How do ATP tests work?

Simply put, ATP tests recreate the chemical reactions that produce light. They mimic the same chemical reactions that cause bioluminescence and occur when fireflies light up in the summer or when jellyfish and other marine life glow under the sea.



1. Visually confirm that the surface looks clean, then swab a representative area of the food contact surface.
2. Immerse the tip of the swab into the enzyme solution and shake.
3. Then insert into a luminometer, a handheld instrument that detects small amounts of emitted light.



4. The luminometer will capture and record the light being released as relative light units (RLU). Record and analyze the data.
5. Based on the test results, either clean the surface again and retest OR advance to the final step.
6. Sanitize the surface.

---

## How do I interpret the data?

If the swab picks up ATP, it will produce light when the swab is immersed in the enzyme solution. RLU's correlate with the amount of ATP on the surface swabbed. If a lot of light is produced from the reaction (i.e. a high RLU reading), it means there was a high level of ATP on the surface swabbed.

After cleaning, there should be a lower level of ATP present on the surface, therefore a low RLU reading is expected after cleaning. If a high RLU reading is obtained after cleaning, proceed to clean again and retest before sanitizing.

---

## Is ATP monitoring required?

The Produce Safety Rule (PSR) and the current GMPs in the Preventive Controls for Human Food (PCHF) rule, do not require the use of ATP monitoring. In the PSR, equipment must be visually clean. For current GMPs, the PCHF rule states that sanitation procedures must be effective, but it does not require testing. As a result, it is up to each firm as to whether or not ATP monitoring should be used. This is an expensive tool, so before investing make sure it is necessary for your facility.

*If it's not required, why would my operation use ATP monitoring?*

- It could be necessary to meet Preventive Controls and HACCP or HARCP requirements under the PCHF rule.
- It could be necessary for an established environmental monitoring program in your facility.
- It could be necessary to meet third-party audit or buyer requirements.

---

## FAQs

### **My facility is small and the system is costly. Am I required to do ATP monitoring?**

No, the PSR requires that equipment is visually clean and GMPs in the PCHF rule require sanitation procedures be effective. Testing is not required. ATP monitoring can be expensive, so it is up to each facility as to whether or not it is needed.

### **Where can I purchase a luminometer and ATP swabs?**

These are available online for purchase through several retailers. You can do a search online using key words such as ATP testing or luminometer.

### **Does ATP measure living bacteria?**

No. ATP monitoring does not measure bacteria. It measures the presence of organic matter but cannot distinguish between living bacteria and food debris. It only provides a general estimate of cleanliness.

### **How much does it cost to invest in an ATP monitoring system?**

There are initial costs upfront and then ongoing costs as you perform testing. Luminometers range from ~\$1,500 to \$3,500. Sometimes the luminometer purchase includes swabs, which increases the cost. Swabs usually come in a case of 100 swabs and range in cost from ~\$225 to \$360 per case. The enzyme solutions that are part of the swab will expire. This is important to consider when purchasing swabs. Additional materials include calibration kits, positive controls, and carrying cases. Some of the luminometers include software that will link to your computer so you can keep electronic records.