

**Safeguarding Hygiene
Where it Matters Most**

HyServe



Lumitester Smart With A3 Detection

ATP + ADP + AMP

More Reliable and Sensitive than ATP Tests
A3 Finds What Others Miss



**FOOD & BEVERAGE
PRODUCERS**



**HEALTHCARE
SECTOR**



**WATER
QUALITY**

Rapid
verify hygiene after cleaning,
in just 10 sec on site

Easy
simple usage for everyone

Quantification
numeric values are easy
to standardize and compare

Sensitive
higher sensitivity than other ATP tests;
detects not only ATP, but also ADP and AMP

Introduction to the A3 Test

ATP is a universal high-energy molecule in all organic matter, including bacteria, spores and food residues. However, it can be easily degraded to ADP and AMP, especially during food processing.

What is ATP, ADP, AMP?

ATP (adenosine triphosphate) is a molecule found in all living cells and serves as an indicator of overall surface hygiene and cleaning efficiency. ADP (adenosine diphosphate) and AMP (adenosine monophosphate) are derived from ATP during food processing. All bacteria contain ATP in different levels depending on the status of the bacteria, log phases.

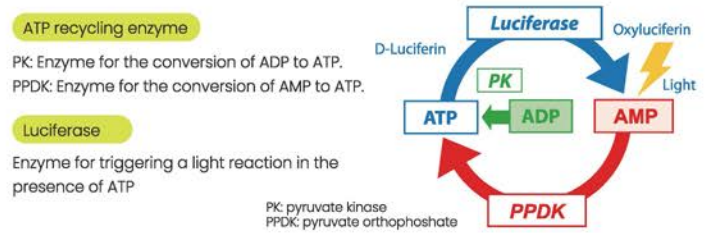
Object to be measured

ATP, ADP, AMP are present in bacteria and food residues



A3 Test

The A3 test employs advanced chemistry to detect ATP+ADP+AMP to offer higher sensitivity and better detection.



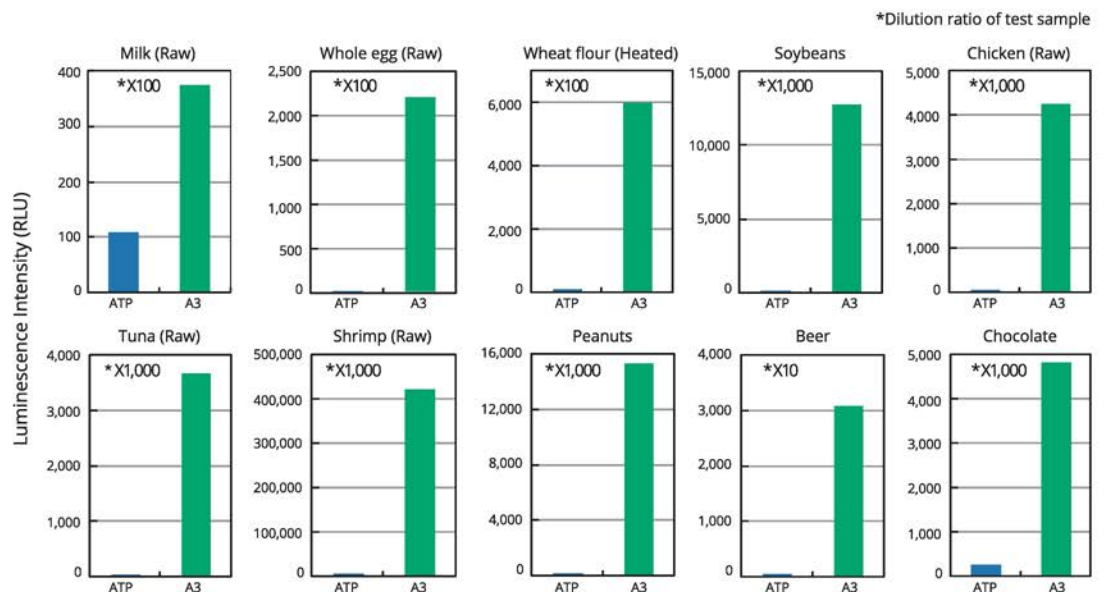
A3 – Detects ATP+ADP+AMP / More Reliable and Sensitive

LuciPac A3 detecting ATP+ADP+AMP, shows superior sensitivity and stability for detection of food residues and allergens compared to conventional ATP assays.

※ ATP+ADP+AMP Hygiene Monitoring System (A3 Assay) is named originally by Kikkoman.

A3 vs. ATP in Food

Food residues which contain high level of ADP, AMP such as meat, fish, processed food are detectable with high sensitivity.

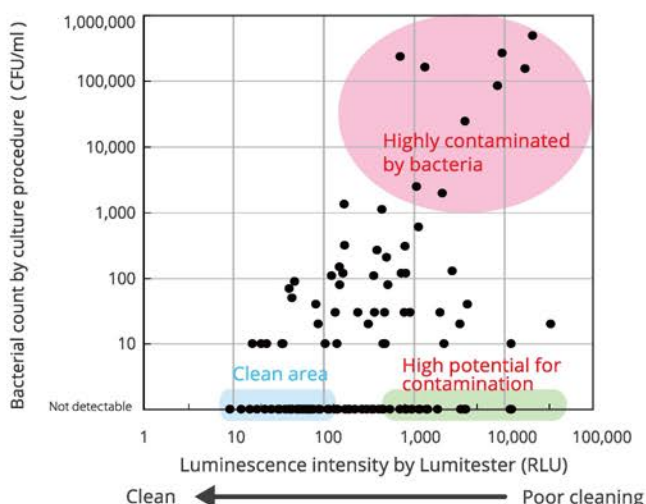


Reference: "Comparison of Detection Limits for Allergenic Foods between Total Adenylate (ATP+ADP+AMP) Hygiene Monitoring Test and Several Hygiene Monitoring Approaches" M. Bakke et al. Food Foot, Vol. 83, No. 7

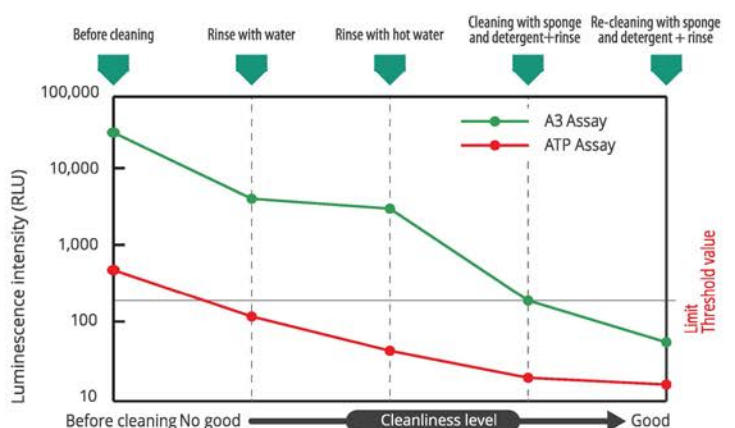
A3 – Indicator of Hygiene Monitoring / Prevents Contamination

Sanitation is critical to food safety. A3 detection prevents ineffective cleaning by monitoring environmental contamination. Many of the food processors use A3 as part of the sanitation program to verify the effectiveness of its processes.

Correlation between bacterial counts and ATP+ADP+AMP level



Evaluation of cleaning (stainless surface)



A3 represents a novel ATP test that can detect residues left behind by ineffective cleaning at lower levels.

IMPLEMENTATION GUIDE – Case example of initial stage –

A3 Test for Preventive Controls

Easy to use and provides immediate feedback and verification of sanitation processes. Enables monitoring environmental contamination, including food residues and bacteria, and for detection of biofilms that can harbor pathogens and allergens.

Food & Beverage Processors

Evaluate the cleanliness of production line

- DETERMINATION OF TEST LOCATIONS**
The areas likely remain contaminated such as valves of tanks outlet or pipe-coupling packings
The surface of conveyor belts directly in contact with products or raw materials

- Exemplary PASS/FAIL LIMITS AND SWABBING METHODS**
200 RLU or lower: Smooth / direct contact / easy-to-clean surfaces (e.g. stainless, glasses)
500 RLU or lower: Rough / indirect contact / hard-to-clean surfaces (e.g. resin products)
Large sample: Swab 10 cm square area you want to measure vertically and horizontally about 10 times for each.
Small sample: Swab the entire area thoroughly.

Always use the same measurement method for better comparison of the results.

LuciPac A3 can be used for daily evaluation of cleaning, also allows users to check in critical locations.

The risk of presence of residual allergens can be decreased by thorough washing.



Test points	Limits lower/pass upper/fail	Swabbing method
Filler / Nozzle	200 400	Swab the inner surface and make circles 2 to 3 times, while turning the cotton swab around
Tank	200 400	10 cm square of the center bottom portion and top end portion of the inside
Pipe	200 400	Swab the inner surface and make circles 2 to 3 times, while turning the cotton swab around
Valve	200 400	Inner side such as disk, seat
Processing equipment (e.g. meat processing equipment)	500 1000	10 cm square around the center
Production line (e.g. conveyor)	500 1000	10 cm square around the center

※ When you make a measurement, it needs to be performed after cleaning and wiping.

Food Service

Prevent secondary contamination by hygiene monitoring

- DETERMINATION OF TEST LOCATIONS**
The areas that are difficult to clean and likely remain contaminated. The areas that come into contact with non-sterilised food (raw food)

- Exemplary PASS/FAIL LIMITS AND SWABBING METHODS**
200 RLU or lower: Smooth / direct contact / easy-to-clean surfaces (e.g. stainless, glasses)
500 RLU or lower: Rough / indirect contact / hard-to-clean surfaces (e.g. resin products)
Large sample: Swab 10 cm square area you want to measure vertically and horizontally about 10 times for each.
Small sample: Swab the entire area thoroughly

Always use the same measurement method for better comparison of the results.

You can check if cleaning is properly done with on site measurement, to prevent any contamination leading to re-cleaning. A numerical display of test results allows effective cleanliness management, comparing readings from different shops, sites, etc.



Test points	Limits lower/pass upper/fail	Swabbing method
Knife	200 400	Both sides of the entire blade, a handle, joint between the blade and the handle
Cutting board	500 1000	Swab a 10 cm by 10 cm area at the center in the left-to-right and up-to-down directions
Counter / Table	200 400	Swab a 10 cm by 10 cm area at the center in both the left-to-right and up-and-down directions
Refrigerator handle	500 1000	Swab the entire surface of the handle

※ When you make a measurement, it needs to be performed after cleaning.

- Pass/Fail Limits are subject to own validation depending on environmental conditions and requirements.

Hygiene Education and Feedback

Conduct hygiene education for employees
Encourage hand washing by training and feedback

- WHEN DO YOU MEASURE?**
Please use this kit after hand washing and before using disinfectants.

- PASS/FAIL LIMITS AND SWABBING METHODS**
2000 RLU or lower: After hand washing. Swab entire palm including fingertips and between fingers, etc.

Note: Please note that benchmark RLU value depend on the condition of the surface, and type of ingredients/materials contacted on the surface, also risk management level of the area. We recommend our customer to conduct self-validation and establish own pass/fail limit.

Hand washing is the primary measure of infection prevention and control!



Test points	Limits lower/pass upper/fail	Swabbing method
Hand washing / Hand and Fingers	2000 4000	Swab the entire palm of the hand over 5-10 passes in the left-to-right and up-to-down directions as well as between fingers and the tips of fingers

※ 90% of people can achieve this level when they conduct A3 test after hand washing.

DAILY HYGIENE MONITORING FOR HYGIENE MANAGEMENT

With the App, anyone can check cleanliness easily



Measure | Detection in 10 seconds

1. Swab

Swab the sample on a 10 cm x 10 cm area, and insert the swab into main body



2. Measure

Shake well and insert into the Lumitester Smart



3. Analyze

Measurements (RLU) displayed within 10 seconds and transferred to the App.



Understand | App to continuously monitor multiple data

Recorded data can be displayed in time-series by registering with the Lumitester Smart App. Inspection pass rates are automatically graphed and data can be visualized. Employees will be more conscious of hygiene, and will maintain a high standard of environmental sanitation, which will help build greater trust in your business.



Display trend analysis for each inspection



Visualize overall inspection scores through graphs



Connect | Cloud data management to combine data from multiple facilities

Data will be stored in the cloud and can be accessed from anywhere in the world. This will allow fast detection and response to any problems that may arise.



LuciPac™ A3 Surface

Product code: 1702671 100 swabs/kit

LuciPac™ A3 Water

Product code: 1702672 100 swabs/kit

Long Term Storage

2-8°C (do not freeze)

Short Term Storage

14 days at 25°C (unopened)

Shipping Condition

at ambient temperature for up to 14 days

Expiry

15 months after manufacturing date

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Use LuciPac A3 for Lumitester Smart, PD-30 or PD-20. Do not use it for other models.