

## Instructions for LuciPac A3 Surface

Make measurements after cleaning. Allow LuciPac to reach room temperature(20~25°C, 20minutes) before use.

### 1 Swab



Moisten the swab with tap water<sup>\*1</sup>, then swab the sample<sup>\*2</sup>.

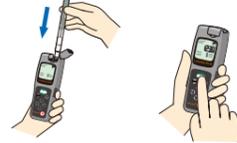
### 2 Shake



Pressing the bottom by palm

Insert the swab back into the main body, then push it down. Shake until the liquid reagent slides down and dissolve powdered reagent.

### 3 Measure



Insert the LuciPac into the chamber of Lumitester to make a measurement.



Hold the device upright while the measurement is made.

\*1 Do not use Saline. \*2 Measurement results may not be valid if there is disinfectant such as alcohol or detergent remaining on the surface.



Make sure to remove the LuciPac A3 Surface from the Lumitester when measurement is completed. If the Lumitester is stored while the LuciPac A3 Surface is left in the instrument, fluid of LuciPac A3 Surface may leak out and damage the instrument.

## ATP+ADP+AMP test kit for liquid samples LuciPacA3 Water

### ✓ Environmental Hygiene

For hygiene control for liquids

It can be utilized for cleaning control of bathtubs, shower places and hygiene control of water in bathtubs at public bath facilities.  
The hygiene control of rinse water for electronic parts can be made simply in the manufacturing companies.

This test enables you to measure the cleanliness of liquids, such as water in quick and easy steps. The amount of sample is 150µl, variability is lower than 5%.  
Even the water(liquid) sample contains ATP+ADP+AMP due to improper cleaning or propagation of microorganism.  
Since you can check the amount of ATP+ADP+AMP in a few simple steps, you can detect abnormalities earlier.



### Lumitester PD-30 Product Code: 60486

Measurement time	10 seconds
Data output	Relative Light Unit(RLU)
Power	Two AA alkaline or nickel hydride rechargeable batteries
Accessories	Two AA alkaline batteries, cleaning brush, USB cable, strap, Quick Manual, CD-ROM, stand-up soft case

※ Make sure to remove the LuciPac A3 Surface from the Lumitester when measurement is completed. If the Lumitester is stored while the LuciPac A3 Surface is left in the instrument, fluid of LuciPac A3 Surface may leak out and damage the instrument.

#### Main function of Lumitester PD-30

- ▶ Data analysis software
- ▶ Emoticon display
- ▶ Temperature Compensation
- ▶ Self-diagnosis
- ▶ 8 languages display option
- ▶ Stand-up soft case

### LuciPac A3 Surface Product Code: 60361 100 sticks/kit

### LuciPac A3 Water Product Code: 60365 100 sticks/kit

Storage Condition	2-8°C (Do not freeze)
	14days at 25°C
	5days at 30°C ] when pack has not been opened
Expiry	15months after manufacturing date
※Use LuciPac A3 for Lumitester PD-20 or PD-30. Do not use it for other models.	

#### Note

- ※ Do not use this product for purposes other than hygiene monitoring.
- ※ It is not to be used for counting general living bacteria or detecting specific pathogens.

Manufacture and Sales

**kikkoman**

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# Is CLEANING being done properly?



Lumitester™ PD-30



## ATP+ADP+AMP

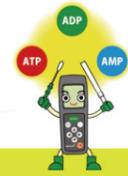
Hygiene Monitoring System (A3 Assay)

Ultra-sensitive detection is available

**kikkoman**

## The Principle of ATP+ADP+AMP Detection

Kikkoman has developed ATP+ADP+AMP detection technology by utilizing brewing technique of soy sauce. Kikkoman's own ATP cycling method allows you to detect not only ATP but also ADP and AMP have been overlooked.

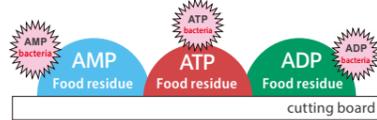


### What is ATP,ADP,AMP?

ATP (adenosine triphosphate) is the primary molecule involved in metabolism in all living organisms. ADP (adenosine diphosphate) and AMP (adenosine monophosphate) are derived from ATP during the processing, such as heat treatment and fermentation.

### Object to be measured

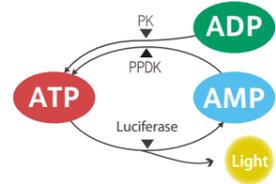
ATP,ADP,AMP are present in bacteria, food residue.



### ATP cycling method

This kit utilizes Kikkoman's own biotechnology "ATP cycling method". Ultrahigh sensitivity is attained with ATP plus ADP, AMP detection (Patent pending)

ATP Synthase PK: Enzyme for the conversion of ADP to ATP. ※PK: pyruvate kinase  
PPDK: Enzyme for the conversion of AMP to ATP. ※PPDK: pyruvate orthophosphate dikinase  
Luciferase Enzyme for producing light in the presence of ATP

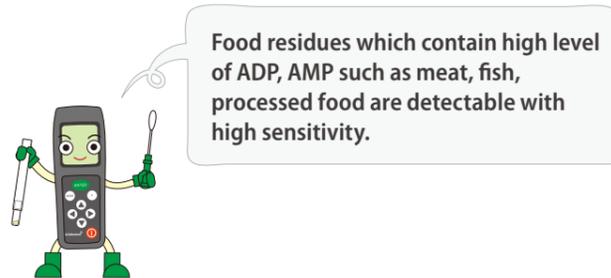


## The reason why wider range of residue can be detected

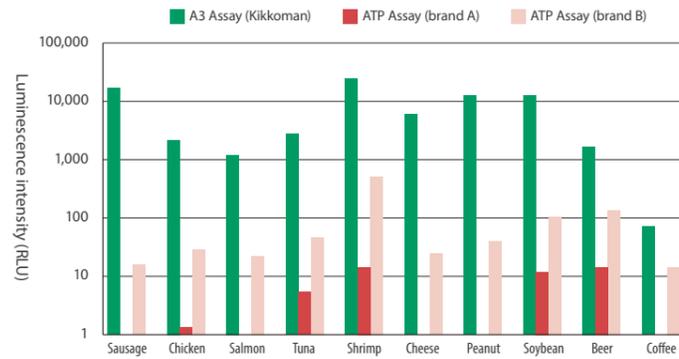
Since some kinds of food residue contain larger proportion of ADP and AMP than ATP, some contaminants are not detectable with ATP test. The A3 Assay<sup>※</sup> achieved ultrahigh sensitive detection by measuring not only ATP but also ADP and AMP.

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

### Measurement examples of various kinds of food residues



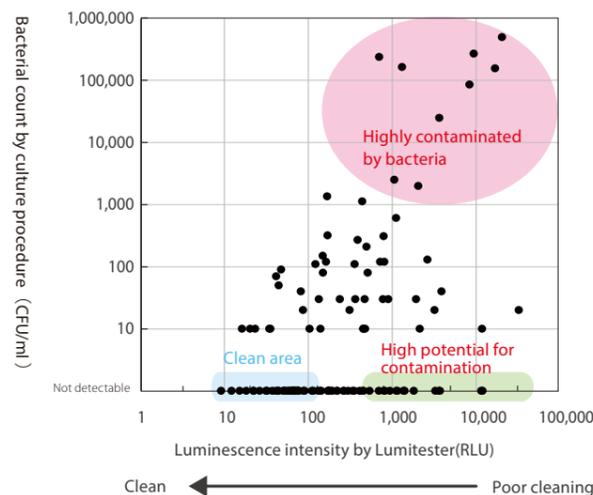
Food residues which contain high level of ADP, AMP such as meat, fish, processed food are detectable with high sensitivity.



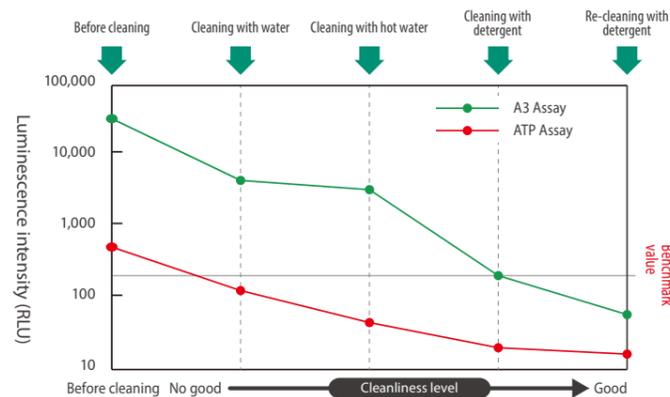
## What is the clean state?

The clean state equals the state which food residue and bacteria are removed by proper cleaning. Let's achieve the clean state by A3 Assay.

### Correlation between bacterial counts and ATP+ADP+AMP level



### Evaluation of cleaning(stainless surface)



An accurate evaluation of cleaning cannot be made with ATP test.

## Operation Examples

Evaluation of cleaning is the first step toward attaining HACCP

Work toward to permanently eliminate the risk of food poisoning with ATP+ADP+AMP hygiene monitoring system (A3 Assay)!

### ATP+ADP+AMP Hygiene Monitoring System Kit LuciPac A3 Surface

#### Hygiene Education

Conduct hygiene education for employees

Since a measurement result comes out on site, it supports hygiene education as an effective tool.

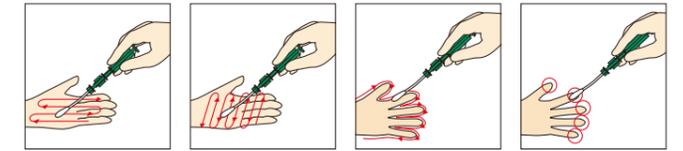


#### When do you measure?

▶ Please use this kit after hand washing and before using disinfectants.

#### Benchmark values and swabbing methods (examples)

- ▶ 2000RLU or less<sup>※</sup>: After hand washing.
  - ▶ Swab entire palm including fingertips and between fingers, etc.
- ※90% of people can achieve this level when they conduct A3 test after hand washing. Since the previous model, LuciPac Pen, detects ATP+AMP, the benchmark value is 1500RLU.



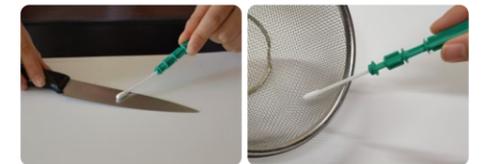
#### Restaurant, Food service facilities

Prevent secondary contamination by hygiene monitoring

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

#### Determination of test locations

- ▶ The areas difficult to wash and likely remain contaminated
- ▶ The areas contact with food that is not sterilized(raw food)



#### Benchmark values and swabbing methods(examples)

- ▶ 200RLU or less: Smooth surfaces (stainless, glasses)
- ▶ 500RLU or less: Uneven or easily scratched surfaces (resin products)
- ▶ Large sample: Swab 10cm square area you want to measure vertically and horizontally about 10times for each.
- ▶ Small sample: Swab the entire area thoroughly.

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

Test locations (examples)	Benchmark values (RLU)	Swabbing methods
Cutting board	500	10cm square around the center
Colander and bowl	200	10cm square of the center bottom portion and top end portion of the inside
Kitchen counter	200	10cm square for the area you want to measure
Knife	500	Both sides of the entire blade, a handle, joint between the blade and the handle
Stainless vat	200	Corners where likely remain contaminated
Pot	200	10cm square of the center bottom portion and bottom end portion of the inside
Refrigerator (handle)	200	Inner and outer surface of the entire handle
Refrigerator (inside)	500	10cm square at the center of shelf
Sink	200	4 corners, 10cm square at the center

#### Food processing plants

Evaluate the cleanliness of production line

LuciPac A3 can be used for daily evaluation of cleaning, also allows for users can detect especially contaminated locations. The risk of presence of residual allergens can be decreased by thorough washing.

#### Determination of test locations

- ▶ The areas likely remain contaminated such as valves of tank outlet or pipe-coupling packings
- ▶ The surface of conveyor belts contact with products or raw materials directly



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Test locations (examples)	Benchmark values (RLU)	Swabbing methods
Surface of conveyor belt (resin product)	500	10cm square around the center
Blending vessel (Stainless steel)	200	10cm square of the center bottom portion and top end portion of the inside
Valve	200	Inner side such as disk, seat