

## For Kitchen

One of the main causes of food poisoning is secondary contamination due to inadequate cleaning. This can be used to determine on site whether cleaning is adequate or not to allow additional cleaning to be completed as necessary to prevent accidents before they occur.

(Examples) test sites, relative light unit (RLU) values, and swab methods

Test site	Pass criteria (RLU)	Swab methods
<b>▶ Kitchen</b>		
Kitchen knife	200	Swab the entire surface of the blade on both sides and the knife bolster
Peeler	200	Swab the edges of the peeler blade
Ladle	200	Swab the entire surface of the ladle except for the handle
Cutting board	500	Swab a 10 cm by 10 cm section at the center in the left-to-right and up-to-down directions
Colander	200	Swab a 10 cm by 10 cm section at the center in the left-to-right and up-to-down directions and also make a pass around the inside of the top edge
Faucet	200	Swab the entire surface of the handle of the faucet
Sink	200	Swab the four corners of the sink
Handle	200	Swab the entire surface of the handle
Food preparation table	200	Swab a 10 cm by 10 cm section at the center in both the left-to-right and up-to-down directions
<b>▶ Hands and fingers</b>		
Palm (kitchen)	1500	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 the fingers
Social hand washing		



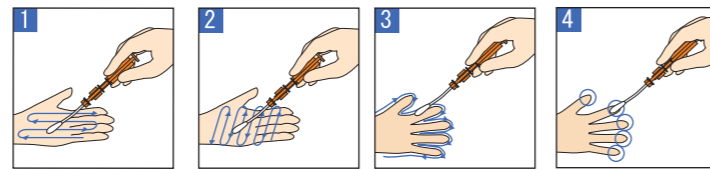
- ATP swab test methods were printed in the Food Sanitation Inspection Guidelines, Microbiology Volume 2004 (released under the supervision of Japan's Ministry of Health, Labour and Welfare).
- The ATP swab test is the first step in the Hazard and Critical Control Points (HACCP) system.

## For Education and Hand-Washing Procedures

The best defense against hospital contamination starts with proper hand-washing techniques!

(Examples) test sites, RLU values, and swab methods

Test site	Pass criteria (RLU)	Swab methods
<b>▶ Hands and fingers</b>		
Palm (hospital and nursing)	1000	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



Details on where and how to swab are as presented above. Be sure to thoroughly swab areas easily missed such as between fingers, at the tips of fingers, and other places that are not always washed adequately.



## Easy Usage

- 1 Swab**  
Moisten the cotton swab for the LuciPac Pen with tap water<sup>1</sup>, and use it to swab the test subject.<sup>2</sup>
- 2 Shake well**  
Insert the swab holder back into the main body, and push once. Shake the liquid solution inside the tube down to the bottom and use it to dissolve the powdered test reagent.
- 3 Measure the amount of contamination**  
Insert the LuciPac Pen into the measurement chamber of the Lumitester PD-30 to take measurements.

<sup>1</sup> Do not use saline with the device. You may use sterile water.  
<sup>2</sup> Measurement results may not be valid if taken while there is disinfectant such as alcohol left remaining on the surface.

**!** Make sure to remove the LuciPac Pen from the Lumitester PD-30 once measurements have been completed. If the LuciPac Pen is stored while left in the device, fluid may leak out and damage the Lumitester PD-30, causing it to malfunction.

Lumitester PD-30 (Product Code: 60486)	
Measurement Time	10 sec. (20 sec. when using temperature compensation in cold temperatures)
Measurement Temperature	10-40°C when temperature compensation function is ON 20-35°C when temperature compensation function is OFF
Data Output	Relative Light Unit (RLU)
Data Memory	2000 pcs of data
Power	Two AA alkaline or nickel hydride rechargeable batteries
Dimensions	65x175x32mm, approx. 235g (excl. batteries)
Accessories	Two AA alkaline batteries, cleaning brush, USB cable, strap, Quick Manual, CD-ROM, stand-up soft case

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

LuciPac Pen (Product Code: 60331)	
Appearance	An integrated testing device that containing the cotton swab, ATP releasing reagent, and luminescent reagent.
Packing	20 sticks in an aluminum packs; 5 packs make one kit (100 sticks/kit)
Material	Polypropylene
Storage	2-8°C (should not freeze) 14 days at 25°C (when pack has not been opened) 5 days at 30°C (when pack has not been opened)
Expiry	14 months after manufacture

※Use LuciPac Pen for Lumitester PD-20 or PD-30. Do not use it for other models.

Manufacture and Sales

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<sup>1</sup>Lumitester<sup>™</sup> and<sup>2</sup>LuciPac<sup>™</sup> are registered trademarks of Kikkoman Corporation in Japan and other countries. The information contained herein is subject to change without further notice.

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# ATP+AMP hygiene monitoring test Lumitester<sup>™</sup> PD-30 & LuciPac<sup>™</sup> Pen

- For infection control in hospital and nursing -

**Ultrahigh sensitivity attained with ATP plus AMP detection**  
US Patent No. 5891659



Anytime, anywhere, simple and easy detecting contaminants with in only 10seconds

**A soft case that allows for upright positioning.**

It's easy to carry and resists soiling.



**8 Language Display Options**

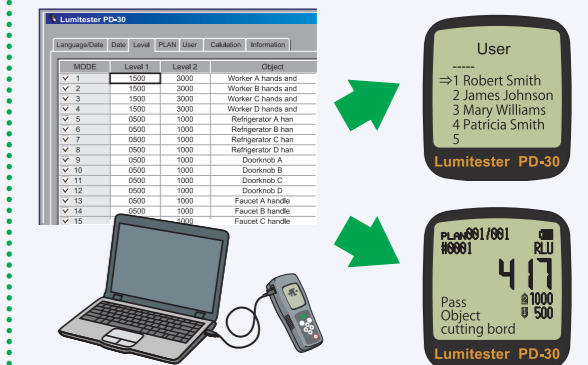
Select the display language from the eight languages provided. This facilitates the use of the Lumitester PD-30 overseas.

- English •German
- French •Spanish
- Korean •Japanese
- Chinese (both simplified and traditional)



**Data Analysis Software**

The data analysis software allows you to match the testing mode to various measurement sites and situations.



## Useful for Various Scene

Hand-washing training



Environmental testing



Cleaning evaluation for stainless steel instruments



Cleaning evaluation for gastrointestinal endoscopes

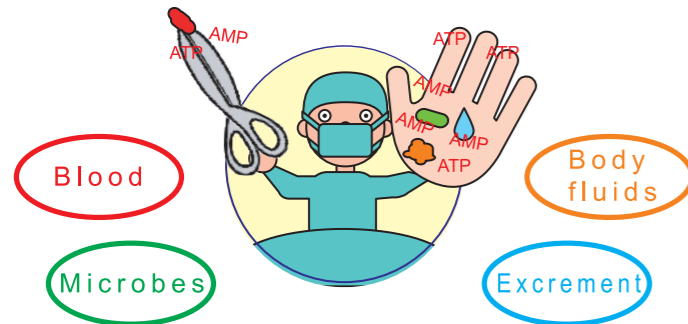


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## What is ATP + AMP Swab Test?

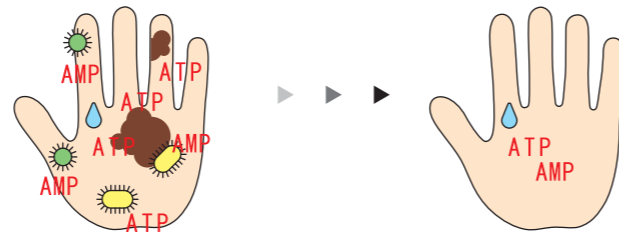
The ATP+AMP swab test is a test used to measure the amounts of adenosine triphosphate (ATP) and adenosine monophosphate (AMP) in the area tested. ATP and AMP are both present in contaminants (blood, other body fluids, excrement, microbes, and other substances) found in medical treatment facilities. If large amounts of ATP and AMP are found, then cleaning is determined to be insufficient; if low amounts are found, then cleaning can be determined to have been adequate.

Check medical facilities for invisible contaminants and get results in just 10 seconds



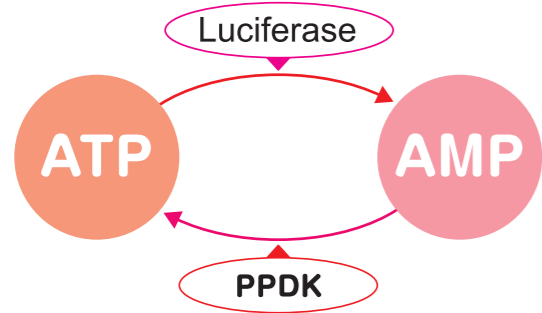
\*Adenosine triphosphate (ATP) is a marker of contamination.  
\*Adenosine monophosphate (AMP) is a marker of contamination by substances with altered ATP molecules.

High amounts of ATP+AMP      Low amounts of ATP+AMP



Before hands are washed      After hands are washed  
\* You can see there's a lot of contamination!      \* You can see there isn't much contamination!

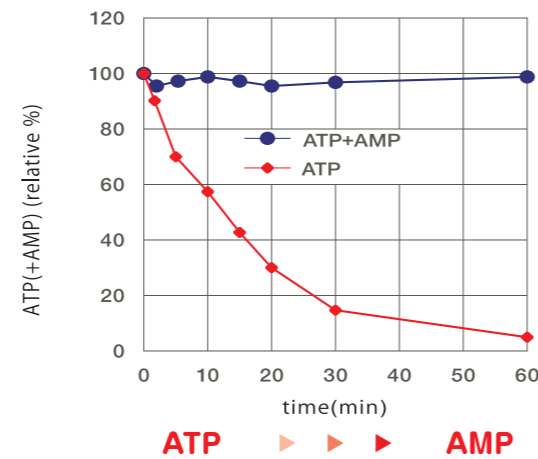
### ATP+AMP method



\* PPKK... Pyruvate orthophosphate dikinase

Kikkoman has created a method using the ATP regeneration enzyme PPKK to measure both ATP and AMP as part of the ATP cycle. This method provides enhanced sensitivity. (US Patent No. 5891659)

### ATP is decomposed by hemolysis



ATP+AMP is stable. ATP is decomposed to AMP. Detecting both ATP and AMP is very important from technical point of view.

## Reference Data

#### Relationship between ATP+AMP amounts and bacterial counts

Environmental testing inside a medical facility

Number of bacteria (CFU/ml)

Amounts of ATP+AMP (RLU)

Cleaning can be completed thoroughly to ensure that measurement values fall below 100 RLU, allowing parts and areas to be maintained under sanitary conditions.

#### Surface of a stainless steel plate viewed under a microscope

Contaminated

Clean

The surface may look clean to the naked eye, but contamination is visible under the microscope. The ATP+AMP swab test can be used to detect even low amounts of contamination such as this.

#### Example based on measurements taken for stainless steel instruments

Measurement values (RLU)

There are facilities with equipment shown on the graph as examples that fall below the pass line of 100 RLU.

## For Environmental Testing

Environmental testing focuses on those areas touched often by human hands and fingers that may readily become sources of cross-infection.



(Examples) test sites, RLU values, and swab methods

Test site	Pass criteria (RLU)	Swab methods
▶ Nurses' station		
Cart	200	Swab the entire surface of each arm
Stethoscope	200	Swab the entire surface of the chest piece
Sphygmomanometer pump	500	Swab the entire surface of the pump
IV pole	500	Swab the entire surface of the handle
Phone receiver	200	Swab the entire surface (inner side and outer side)
PC keyboard	200	Swab the entire outer surface
PC mouse	200	Swab the entire outer surface
Refrigerator (handle)	200	Swab the entire surface of the handle (inner side and outer side)

Test site	Pass criteria (RLU)	Swab methods
▶ Hospital ward		
Overbed table	500	Swab each corner and a 10 cm by 10 cm section at the center in all directions
Door handle	200	Swab the entire surface of the handle
Bed side rails	200	Swab 10-cm-wide areas of the top of the side rails in three places (on the left and right sides and at the center)
Nurse call button	200	Swab the entire surface of the button
Switches	200	Swab the entire surface of each switch

Operating rooms, diagnostic devices in testing rooms, imaging equipment, medical tables may also be good candidates for testing.

As cleaning effects may vary depending on equipment conditions in test sites, the materials used, and other factors, set control in RLU values on environmental levels within the facility and set accordingly.

If measurement values after cleaning are found to be higher than the recommended RLU value, try performing a second cleaning or use an improved cleaning method to see if that helps.

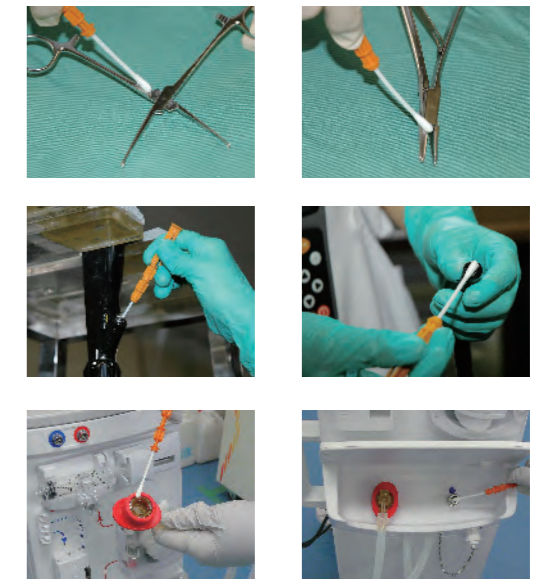
## For Reusable Medical Instruments and Devices

Reusable medical treatment devices including stainless steel instruments, gastrointestinal endoscopes, and other devices and parts are subject to extremely high standards for cleanliness levels.

Have you ever worried about whether you were cleaning such devices and parts correctly or whether your cleaning equipment was working properly? If so, then you should try out the ATP+AMP swab test, which allows you to check cleanliness levels firsthand both quickly and easily. ATP swab test methods are listed in the Guideline for Cleaning and Disinfection of Reusable Instruments 2004 (published by the Japanese Society of Medical Instrumentation).

(Examples) test sites, RLU values, and swab methods

Test site	Pass criteria (RLU)	Swab methods
▶ Stainless steel instruments		
Parts with uneven surfaces, box locks, and similar parts	100	Swab the surfaces of areas other than those touched by human hand
Devices and parts with complicated designs	100	Swab the surfaces of areas other than those touched by human hand
▶ Gastrointestinal endoscope		
Biopsy port	100	Swab as far inside the biopsy port as a cotton swab can be inserted.
Suction channel	100	Thoroughly swab the entire inner surface of each channel while turning the cotton swab around
Air and water channels	100	
Endoscope tip	100	Thoroughly swab the entire surface of the tip covering an area extending approx. 1 cm on the outer sides from the lens and tip
▶ Dialysis room		
Coupler	100	Swab the connectors



- ▶ How to select test sites  
First, testing on surfaces touched by human hands and fingers quite often in the course of regular work duties to determine how contaminated such surfaces are.  
Next, testing on the same surfaces after they have been cleaned to determine how clean they have become. Areas that have not been cleaned adequately (for which the RLU values do not fall below the pass criteria) may be areas in which so much contamination has been built up that it is difficult to remove. It would be preferable to select sites that become contaminated easily or that are hard to clean as test sites.
- ▶ When to complete testing:  
Testing is to be conducted after relevant areas and objects have been washed (and dried).
- ▶ In order to obtain accurate measurement results:  
Do not touch test sites that are to be swabbed with bare hands after they have been cleaned (and dried). Touching such areas with bare hands may contaminate them with ATP+AMP from hands and fingers, which will cause test results to be inaccurate. It is recommended that you wear (powder-free) plastic gloves when conducting tests.