

**CAUTION!**

1. Do not attempt to drink the product reagent, touch it with bare hands or allow it to splash into eyes.
2. Please make sure to read the precautions and instructions in this Instruction Manual before attempting to use the product and exercise extreme caution when using it.

LuciPac A3 Filter Assay is used to detect ATP + ADP + AMP (A3) of microorganisms in a liquid sample by collecting with the filter. ATP, ADP and AMP are substances necessary for various organisms, including microorganisms. By detecting the amount of ATP, ADP and AMP in microorganisms, it is possible to estimate the quantity of microorganisms are present in the liquid sample.

**【Intended use】**

This product can be used to detect microorganisms in a liquid sample by measuring A3.

Please be aware that this product cannot be used to test or measure for viable bacteria count levels or identify specific types of pathogenic bacteria in food and beverage sample. This product shall not provide any guarantee that a given test samples is free of bacterial contamination. This product cannot be used as an alternative test for legally mandated inspections. This product should be used for self-inspection.

**【Measurement principles】**

This product is a detection device for microorganisms in liquids that combines the filtration and the A3 detection method. The A3 detection method uses an enzyme cycling method based on a combination of luminescent reactions from firefly luciferase, and the enzymes pyruvate,orthophosphate dikinase (PPDK) and pyruvate kinase (PK). This method produces a level luminescence that is proportional to the amount of adenosine triphosphate (ATP), adenosine diphosphate (ADP) and adenosine monophosphate (AMP) present in the sample.

A3 exists not only intracellularly within microorganisms but also extracellularly. Filtration can trap the microorganisms and remove extracellular A3, allowing the test to detect A3 from microorganisms on the filter.

**【Content】**

Package: 20 tests

Composition	Quantity
LuciPac A3 Surface	20 tests in the bags
Releasing reagent FA	1 bottle (10 mL)
Syringe	20 pcs
Filter	20 pcs
Filter Assay Stand	1 pc

**【Designated product for measurement】**

Lumitester Smart/PD-30

Be sure to use only designated products when taking measurements

**【The composition of each reagent】**

Reagent Name	Main component
LuciPac A3 Luminescent reagent	Luciferin Luciferase Magnesium acetate Phosphoenolpyruvic acid Pyrophosphoric acid Pyruvate,orthophosphate dikinase Pyruvate kinase
LuciPac A3 Releasing reagent	Surfactant (Benzalkonium chloride)
Releasing reagent FA	Surfactant (Benzalkonium chloride)

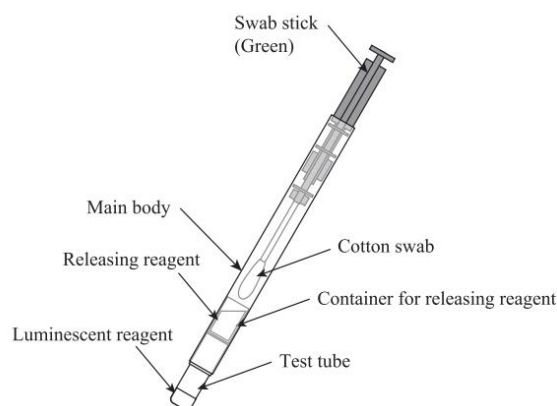


Fig 1. The name of each part of the LuciPac A3 Surface

**【Instruction for use】**

See the quick manual for this product. The quick manual is attached as the last page of this instruction manual.

**【Precautions for use】**

Please make sure to follow the precautions listed below in order to obtain optimal performance from this product

**1.The collection of microorganisms by syringe and filter**

- 1) A 10 mL syringe is included with this product. However, the sample volume to be filtered is freely selectable. The larger the amount of sample to be filtered, the higher the concentration factor. A larger volume of sample can be filtered by changing to a larger syringe.
- 2) Do not touch the inside of the syringe, the tip of the removed piston, the tip of the syringe or filter or the container of the filter. Do not put anything else into the filter container before adding the Releasing reagent FA. Failure to follow these precautions may introduce

contamination and accurate test results may not be obtained.

- 3) Do not force a sample that clogs the filter. Samples that clog the filter cannot be evaluated with this product.
- 4) Samples that contain a large amount of ATP, ADP and AMP not derived from microorganisms cannot be evaluated properly with this product. If the sample filtrate shows a test result of 500 RLU or higher when measured with LuciPac A3 Surface, it may not be evaluated correctly due to the influence of extracellular A3.
- 5) The blank may be lowered by filtering and washing the filter using a sterilized buffer solution.

## 2.Extracting A3 from microorganism with the Releasing reagent FA

- 1) Do not touch the tip of the Releasing reagent FA container or the Releasing reagent FA itself in the filter container. Use caution to avoid contamination of the Releasing reagent FA in the filter container. The contamination of A3 will prevent proper test results.
- 2) The recommended amount of Releasing reagent FA to add is 6 drops ( $\pm 1$  drop using 5 or 7 drops will not affect the test significantly.)
- 3) When storing the opened the Releasing reagent FA, close the lid tightly and store it in a refrigerator. Be careful not to touch the inside of the cap and nozzle. Please observe the expiration date for the product.

## 3.General precautions

- 1) Do not use products that are past the expiry date. Expired products may not yield accurate results (the expiry date is printed on the bottom of the LuciPac A3 Surface packaging).
- 2) Be sure to use only designated products when taking measurements. This product cannot be used with non-designated products.
- 3) The LuciPac A3 Surface and the Releasing reagent FA should be allowed to reach room temperature prior to testing if they are from refrigerated stock. Measurement values may read lower than actual if the swab devices are used while still cold. Use the swab devices as soon as possible once they have returned to room temperature. Do not let the product sit out in temperatures exceeding 35°C (95°F) as high temperatures may also affect product performance.

Model	Temperature compensation setting	Temperature range
Lumitester PD-30	OFF	20 - 35 °C (68-95 °F)
Lumitester Smart	ON <sup>*1)</sup>	10 - 40 °C (50-104 °F)

<sup>\*1)</sup> Temperature compensation is performed in accordance with the measured value of a thermometer incorporated in the main body of Lumitester Smart/PD-30. Consequently, the compensation cannot be performed precisely if the temperature of the main body of Lumitester Smart/PD-30 is different from LuciPac. Please be sure that temperatures of the main body of Lumitester Smart/PD-30 and LuciPac become equal before use.

- 4) It is recommended to wear laboratory gloves. Using bare hands may increase the blank value due to contamination from ATP or microorganisms.
- 5) Wherever possible, it is preferable to use all of the remaining LuciPac A3 Surface tests from an opened bag. If it is necessary to store any remaining LuciPac A3 Surface tests once finished with a test session, firmly close the aluminum bag and store back in the refrigerator (2°C to 8°C (35.6°F to 46.4°F)).
- 6) Do not subject the LuciPac A3 Surface to direct sunlight for long periods of time. Strong light may affect product performance.
- 7) Do not touch the filter, the filter container, the syringe, any of the parts inside the LuciPac A3 Surface, particularly any part of the cotton swab itself, prior to use. Touching the test swab may affect

the test results.

- 8) Do not drop the product or any of its parts or allow any parts to be struck or jolted. The inner aluminum sheets and other parts in the product may be damaged, affecting product performance.
- 9) Do not use the product if any parts become damaged.
- 10) Do not put product reagents in your mouth, touch them with bare hands, or get them in your eyes before or after use. If reagents get into your mouth, rinse your mouth well. If reagents get onto your skin, wash the affected area with plenty of water. If reagents get in your eyes, wash with plenty of water. If you have any physical reactions to the reagents, please contact your doctor immediately for instructions.

## 【Managing of data】

The Lumitester displays the test results as Relative Light Units (RLU).

The measured value (RLU) obtained by the A3 method can be correlated with the number of microorganisms in a sample but the colony forming units (CFU) measurement is not a direct measurement of CFU of microorganisms.

By comparing the measurement results of this product with the number of bacteria obtained by a culture method (using growth media), the number of bacteria in a sample can be estimated. When carrying out the culture method, select a medium suitable for the target bacteria. However, the measured value varies depending on the sample, the type and condition of microorganisms contained. The LuciPac A3 Filter Assay also detects microorganisms that cannot be detected by culture methods, such as algae. Therefore, the results obtained with this product may not be directly correlated with the culture method.

## Example of the measurement :

Typical results of using the LuciPac A3 Filter Assay test to filter 10 mL of the test culture and samples is shown in Figures 2. (In each case, quantification of microorganisms in the sample was conducted using R2A media.)

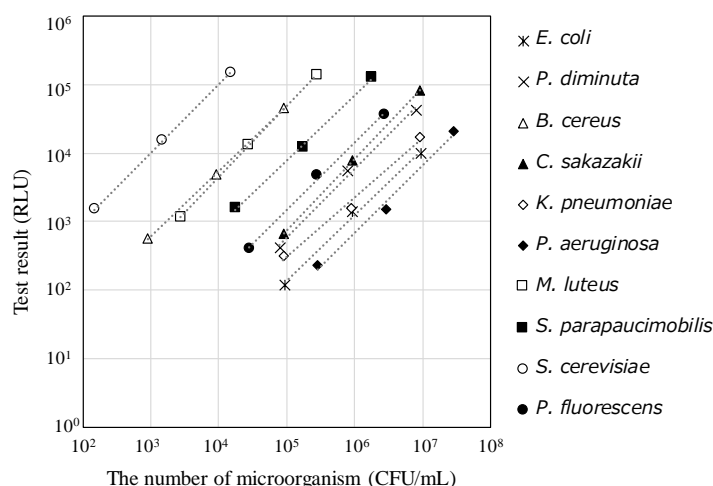


Fig 2. CFU/mL by R2A culture vs. RLU by A3 method.

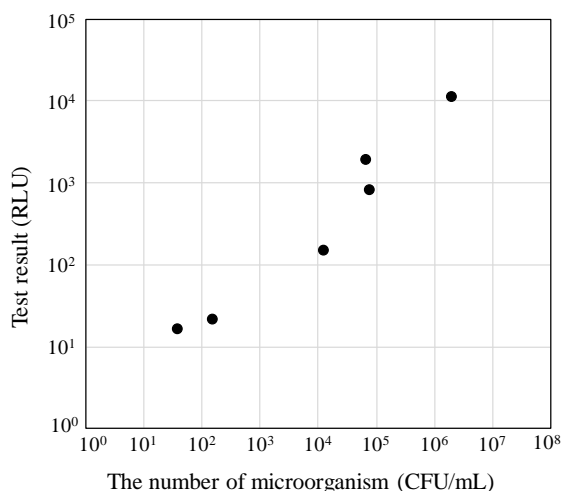


Fig 3. Typical test results  
Test samples were cooling water, ground water, industrial wastewater, tap water and stored water.

### 【Storage】

- 1) Kit storage :LuciPac A3 Surface and Releasing reagent FA are to be stored at refrigeration temperatures (2°C to 8°C (35.6°F to 46.4°F)) for long term storage. The reagents can be stored below 25°C (77°F) for up to 14 days or below 30°C (86°F) for up to 5days before opening an aluminum bag without any adverse effect on the long term stability. Do not freeze the product.
- 2) We recommend that you use all 20 swabs at a time after opening an aluminum product packaging. Wherever possible, it is preferable to use all of the LuciPac A3 Surface tests from an opened bag. If it is necessary to store any remaining LuciPac A3 Surface tests once finished with a test session, firmly close the aluminum bag and store back in the refrigerator (2°C to 8°C (35.6°F to 46.4°F)) and use the test within two weeks after opening.
- 3) Expiry date: Printed on the aluminum bag of LuciPac A3 Surface. The shelf life of Releasing reagent FA is different from LuciPac A3 Surface contained in this product, but please use it within the shelf life of LuciPac A3 Surface.
- 4) Except for LuciPac A3 Surface and Releasing reagent FA, you do not have to refrigerate other components. Be careful not to get the products wet, and store them away from direct sunlight, high temperatures and humidity.

### 【Disposal methods】

This product contains no hazardous materials. This product can be disposed properly in accordance with your local regulations.







The main materials and parts used in this product are listed below.  
No PVC materials are used in the making of the plastics in this product.

### Main raw materials of the structure parts of this product

Structural	Raw materials
<b>LuciPac A3 Surface</b>	
Main body	Polypropylene
Swab holder	Polypropylene
Cotton Swab	Polypropylene (shaft), Cotton (wad)
Container for the releasing reagent	Polypropylene, Aluminum
Measurement tube	Polypropylene, Aluminum
Aluminum bag (with dehumidifying function)	Aluminum, Polyethylene, Polyethylene terephthalate
<b>Releasing reagent FA</b>	
Bottle	Polypropylene
Lid	high density polyethylene (HDPE)
<b>Syringe</b>	
Main parts	Polypropylene
Rubber part	Elastomer (TPE)
Packaging	Polyethylene, Polyethylene terephthalate
<b>Filter</b>	
Main parts	Acrylic styrofoam
Filter	Cellulose acetate
Packaging	Polyethylene, Polyethylene terephthalate
<b>Others</b>	
Bag	Polyethylene
Stand	Paper
Box	Paper

### 【Warranty】

Kikkoman Biochemifa Company warrants these products to have a certain level of quality. This warranty guarantees that Kikkoman Biochemifa Company shall replace defective products should any be found. This warranty does not provide any other guarantees. Kikkoman Biochemifa Company shall not be liable for any damages, including special or consequential damages, or expenses arising directly or indirectly from the use of this product.

Symbols Used in the Packaging and Labeling of this product	
	Symbol for "temperature limitation." The upper and lower temperature limits will be indicated on either side of the symbol. Please store this product at the indicated temperature range.
	Symbol for "Caution" or "Attention" for use.
	Symbol for "Lot Number." This symbol shall be adjacent to the manufacturer's lot number (e.g. 20230303Y) or description of its printed location.
	Symbol for "Use By." This symbol shall be adjacent to the expiration date, expressed as YYYYMMDD (e.g. 20240903), or description of its printed location.
	Symbol for "Consult Instructions Manual."
	Symbol for "Manufacturer." This symbol shall be adjacent to the name and address of the manufacturer.

"LuciPac" and "Lumitester" are registered trademarks of Kikkoman Corporation in Japan and other countries.

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