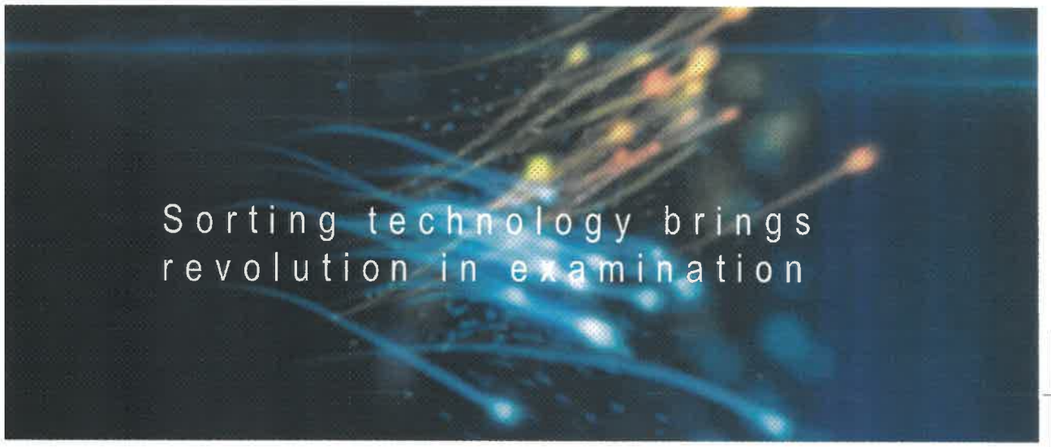
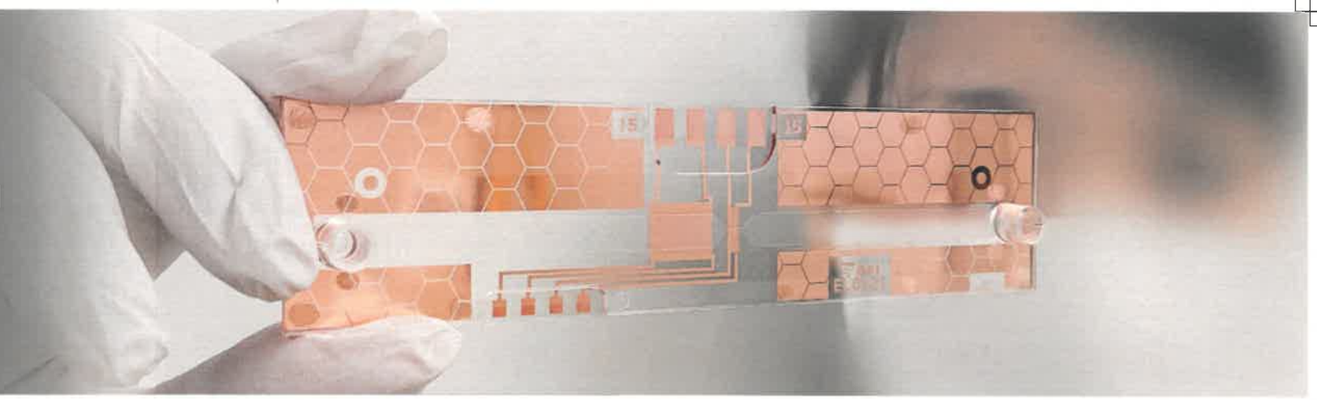


Advanced Filtration Industries

AFI
Advanced Filtration Industries

Advanced Filtration Industries

Innovative electric filtering technology "FES™ " using micro flow channel and electrodes contributes to food inspection, clinical inspection and biological research



Microbial contamination risk monitoring system

Rapid detection system for microbial contamination risk monitoring

ELESTA™

Microbial risk is an important factor to control the quality of products such as food, beverage and cosmetics. Microbial inspection with the conventional culture method takes a few days to get to know the result of contamination risk in the production line and defective quality risk of product. AFI Technology provides ELESTA™, a system that monitors microbial contamination risk in respective manufacturing process steps and early detects quality errors.

(Patent No. 6171124)

Concentration + Collection

ELESTATM can continue capturing microorganisms in the electric filter in a non-invasive and label free manner and collect accumulated microorganisms with the dedicated buffer. This is suitable for unculturable microbial research on VNC and dead bacteria.

Separation + Analysis

Various compounds contained in food, beverages and cosmetics are separated from microorganisms by electric property and fluid control. The dedicated software provides imaging analysis of size, shape, etc. and identifies microorganisms.

Measurement + Recording

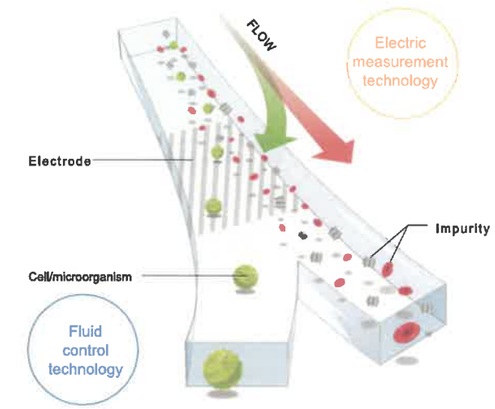
Microorganisms in the analyzed image are automatically counted and all the data and photographs are recorded in the system along with parameter information. The recording employee can re-analyze such information.

(AOA C PTM Certification under application)

FES

AFI's unique technology, "FES™" (Fluid, Electric filtering and Sorting technology) is an innovative filtering technology that utilizes electric measurement technology and traffic jam control technology.

Mechanism of FES™



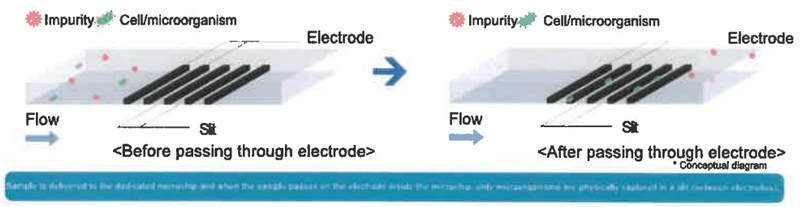
Currently fluorescent staining and ATP are used as non-culture fast testing methods. These techniques respond highly sensitively to microorganisms.

However, actual food and cosmetic samples contains diversified and various compounds and many of them respond in the same way as microorganisms under the current fast testing methods and make a big"noise". This is said to make it hard to detect low-temperature microorganisms in a short period of time.

FES™ provided by AFI has a sorting technology. Introducing the principles of electric property analysis and micro fluid control that are not employed by the existing fast testing techniques and can detect microorganisms mixed from numerous samples that have been regarded as noise factor in a label-free high-sensitive manner.

That is the very reason that FES™ is called "innovative filtering technology" and is the greatest advantage.

Microchip loaded with FES™ELESTA™ chip ~ Structure and Separation/Capture Principle ~



ELESTA™

installation example and operating procedure

Sample ELESTA™ buffer

This is a buffer dedicated to ELESTA™.
It is used to stabilize the capture rate of target microorganisms. It should be used for serial dilution, centrifugal sedimentation and supernatant replacement.

ELESTA™

This is a microbial monitoring system loaded with FES™. Trace microorganisms mixed in a sample can be sorted ou and captured in a high-sensitive manner.

ELESTA™ counter

This is software that automatically counts microorganisms captured in ELESTA™ chip, using the unique image analysis technology. Analysis information (frequency, voltage, flow rate and measured date) on the analysis result and testing may be output in a PDF format.

Centrifuge

Depending on the kind of a sample, this may be used in combination.

Approx. 1,000 mm

Approx. 600 mm

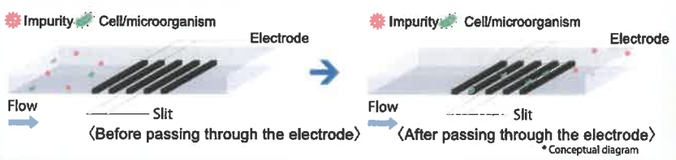
Table size

Width 1600 mm × 600 mm

FES™ (Fluid, Electric filtering and Sorting technology)

Highly separable and concentrated filtering technology using micro flow channel and electrodes Control electrostatic force and force received from fluid for capture, utilizing the difference in the electric property depending on split object

ELESTA™ chip



* Conceptual diagram

Easy operation 3 STEPS

Attach ELESTA™ chip

Attach ELESTA™ chip to the stage

Attach a waste tube

Connect the waste tube to the waste port on the ELESTA™ chip

Connect a syringe

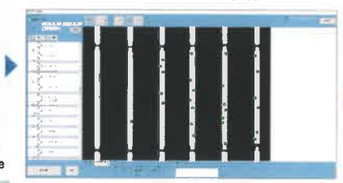
Set the syringe containing a sample and push down the lever

Procedure for using ELESTA™ Counter

Input analytical conditions

Register measurement conditions exclusively for the sample

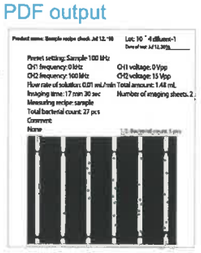
Automatic measurement



Automatically count the microorganisms in the analyzed image

This is a conceptual diagram. It differs from the actual software specification.

PDF output



Measured data and photographs are recorded together with setting conditions and output in a PDF format

Operating method

Monitoring of total bacterial count

- For microbial contamination risk monitoring marker in the manufacturing process
- For screening of microbial spore test and environmental microbial test
- For quality check of effective microorganisms in the intermediate process

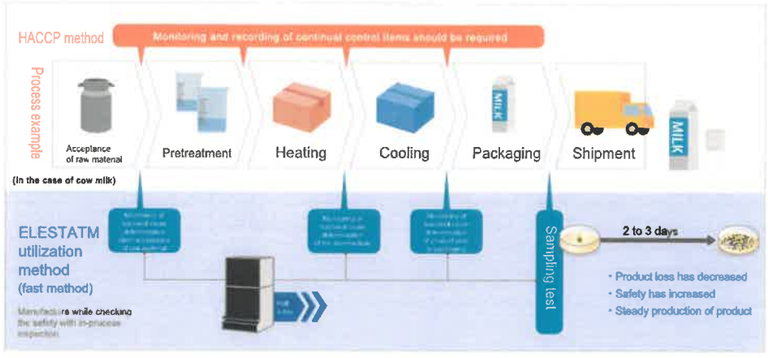
Capture and collection of dead bacteria

- For identification of causative bacteria under PCR analysis by capturing and collecting contaminated bacteria (in a dead state) of complained product recalled
- For validation of product design by monitoring total dead bacterial count in heated product, cosmetic, etc.

Non-invasive and label free separation

- As this is a sorting and measuring method without using fluorescent staining, total bacterial count can be measured even from samples containing self-fluorescent compounds without being influenced
- Since stress on capture target is minimal, captured bacteria can be collected, cultured and verified

Example of utilization



The revised Food Sanitation Law was passed to require all food proprietors to comply with HACCP.

Introduction flow

1. You should send a questionnaire for us to get hold of the actual condition
2. You should send a sample you desire for inspection
3. The sample property evaluation test will be performed for free and the acceptance conditions should be presented based on that result
4. Onerous identification will be proposed to optimize the protocol in relation to the acceptance conditions
5. The optimized protocol clears the acceptance conditions and once you indicate your intention to adopt our proposal, we will work out scheduling up to delivery

Post-delivery support system

Questions over the phone (Yamato Scientific Co., Ltd.) * Exclusive distributor in Japan	Fixed telephone	0120-405-525 * Toll free cannot be used from mobile phone, PHS and partial IP telephone (numbers starting with 050). Please use the navigation dial.
	Navigation dial	0570-064-525 (Calls are charged)
	Operating hours	9:00 a.m. -7:00 p.m. (Also operating between 12:00 p.m. and 1:00 p.m.) * excluding Saturday, Sunday, national holidays and substitution holidays

ELESTA™ spec sheet

Category	Information item	Description	Remarks
Main body size and weight	Size	Width 270×Depth 264×Height 490 mm	
	Weight	18 kg	
Output property	Range of frequency	10 k - 10 MHz	
	Range of output voltage	0 - 20 Vpp	
	Resolution performance	1 Vpp	
Property of delivered solution	Conforming syringe	1 mL and 10 mL	*1
	Range	1-250 µL/min@1 mL syringe 10-250 µL/min@ 10 mL syringe	
Imaging element Or imaging function Or imaged part	Number of pixels	10 million pixels	
	Full resolution	3856×2764 pixels	
	Element	1/2.3 inch color CMOS sensor	
	Maximum frame rate	6.85 fbsp 3856×2764 pixels 31.70 fps@1920×1080 pixels	
Microscopic part	Observation method	Bright field and phase difference	*2
	Field lens (Attached)	×4 and 10 (phase difference)	*3
Accessory PC		Windows 10 Pro (64 bits) Monitor: 23.8 inch wide Keyboard: with mouse	

*1 Only specified syringes can be used.
*2 Switchable with turret
*3 If you desire something other than the accompanied field lens, please consult with the manufacturer.

Your order information

Product name	Product No.	Description
ELESTA™ main body + ELESTA Counter	ELS-002	
ELESTA™ buffer	ELB100N	1000 mL
ELESTA™ chip	ELC121	100 chips
Starter set A	STA-001	ELESTA™ chip 100 chips ELESTA™ buffer 1 L 10 mL syringe 100 syringes 50 mL centrifuge tube 25 tubes
Starter set B	STB-001	ELESTA™ chip 100 chips ELESTA™ buffer 1 L 10 mL syringe 100 syringes 1.5 mL centrifuge tube 500 tubes

The product spec may be subject to change without notice.

Please contact the Sales Department, AFI Technology KK
for details such as questions as to how to order or about the product.
Telephone: +81-6-6390-9010 Mail: customer_support@afi.co.jp

This catalog reflects the description as of July 2018.

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