Millipore®
Filtration, Separation
& Preparation

Data Sheet

EZ-Fluo™ Rapid Detection System

A fast, non-destructive, fluorescent staining-based system for microbial detection

- Rapid technology capable of providing results in ⅓ of the time required using traditional techniques
- Flexible approach based on standard membrane filtration and reduced incubation on media plate
- Non-destructive method, compatible with any ID technique
- Compact hardware, fits easily on any laboratory bench
- Cost effective solution for both routine and investigatory use

Easy to integrate into any laboratory

The EZ-Fluo™ Rapid Detection System from Merck enables you to significantly reduce your time to result, address contamination events sooner, and therefore, gain better control of your manufacturing process. The EZ-Fluo™ System is a rapid florescent-based technology designed for fast quantitative detection of microorganisms over a broad range of filterable samples. This new system uses standard membrane filtration to detect viable and culturable microorganisms down to 1 CFU per sample. EZ-Fluo™ test results are easily comparable to compendial method test results, which facilitates the validation and the integration of this rapid system in any laboratory without causing disruption. Detected microbial contamination can be then identified using your current ID methodology.

Faster product release

Today, more and more QC laboratories are switching to rapid methods for the detection of microbial contamination. This is because traditional methods require several days to provide results and therefore are of limited value when it comes to releasing product to the market faster, or to conducting quick investigations when necessary.

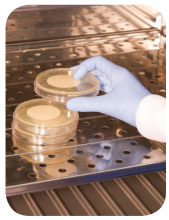
MERCK

Simple protocol using regular membrane filtration and incubation

The EZ-Fluo™ Rapid Detection System consists of a reader and staining reagents used in combination with regular 47 mm filtration membranes and standard media. Optimal results can be obtained using Merck's membranes and comprehensive media portfolio.
The use of the camera (optional) offers traceability of results and comfort when reading.

1. Sample preparation

Filtration using EZ-Fit® Filtration Unit and media plates: Simply filter your sample the same way you prepare your current samples and incubate the membrane on your regular media type.



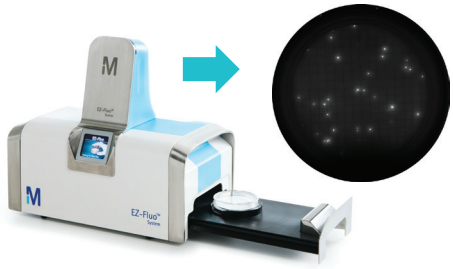
For a perfect contact of the membrane to the agar use our ReadyPlate™ 55 agar plates

2. Fluorescent staining

Transfer membrane to a Petri-Pad Petri dish wetted with staining reagent and incubate for 30 minutes.

3. Counting CFUs

Count fluorescent colonies through the window of the EZ-Fluo™ Reader or use the camera (optional) to view the colonies on your computer screen.



Applications

The EZ-Fluo™ system can detect and quantify microbial contamination in any filterable sample. Potential applications are numerous and include testing of the following sample types:

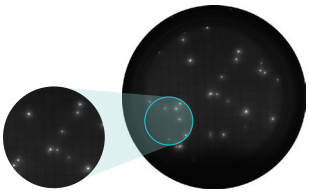
- Raw materials
- In-process samples
- Final product
- Environmental samples

Reincubation for microorganism identification

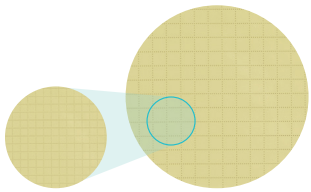
The EZ-Fluo™ System is a non-destructive method that enables you to continue to grow the microorganisms after they have been stained, in order to identify them using any standard ID technology. This is a tremendous advantage compared to other rapid test systems that do not allow ID of microorganisms.

Reincubation step

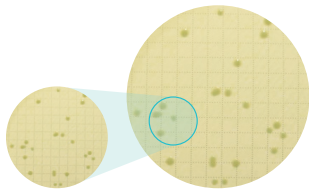
Place membrane on a prefilled agar media cassette and reincubate. Collect and isolate the microorganisms and identify using any existing ID methodology.



Visualize plate after staining. View of membrane in the reader.



Colonies are not visible outside the reader.



After reincubation, colonies are visible to the eye.

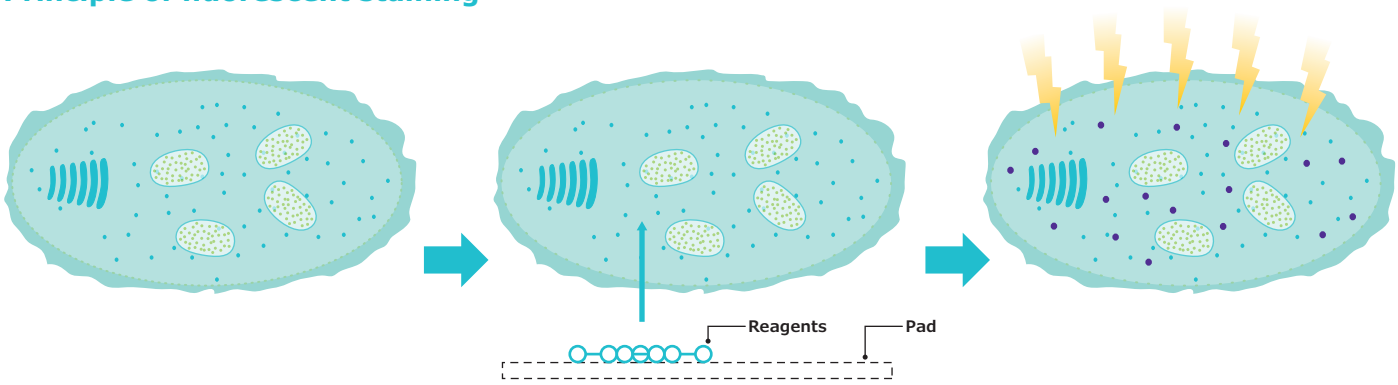
Example: Tested sample of in-process, non-sterile water using the EZ-Fluo™ system. After detection, membrane was re-incubated for full growth and identification.

Non-destructive technology

The EZ-Fluo™ method is based on a unique, non-destructive, fluorescent marker developed by Merck. After filtration and incubation, the staining reagent is applied, and any viable and culturable microorganisms are stained. The reagent is initially non-fluorescent, but an intracellular enzyme that is active only as part of the metabolic processes of living cells, cleaves the substrate to liberate the fluorophore.

As fluorophore accumulates inside the cells, the signal is naturally amplified. In the EZ-Fluo™ reader, the cells are exposed to the excitation wavelength of the fluorescent dye so that they can be visually counted. The fluorescence allows much smaller colonies to be seen than are visible by the naked eye.

Principle of fluorescent staining



Bacterium before staining

Membrane incubation on the staining pad (30 minute incubation)

Stained bacterium

Specifications

		Reader	Camera
Dimensions (nominal)	Length	24.9 cm (9.8 in.)	9.7 cm (3.8 in.)
	Width	14.2 cm (5.6 in.)	6.6 cm (2.6 in.)
	Height	12.5 cm (4.9 in.)	11.4 cm (4.5 in.)
Weight (nominal)		4.4 kg (9.7 lbs.)	0.5 kg (1.1 lb.)
Supply Voltage	Input	100 V – 240 V 50 Hz – 60 Hz	Powered by the computer
	Output	24 V direct current	
Power Consumption	Nominal	670 mA	200 mA
	Maximal	2080 mA	430 mA
Power*	Nominal	16 watts	1 watt
	Maximal	50 watts	2.15 watts
Environmental Operating Temperature	15°C to 40°C (59°F to 104°F)		
Humidity	< 90%		
Altitude	< 3,000 m (9,842 ft.)		
Regulatory Information	We certify that the EZ-Fluo™ Reader and the EZ-Fluo™ Camera were designed and manufactured in application of the following European Council directives: • Electromagnetic compatibility 2004/108/EC • Restriction of the use of certain Hazardous Substances in electrical equipment (RoHS) 2002/95/EC		
Materials of Construction			
Housing		Painted aluminum sheet 1050	
Optical chamber		304L stainless steel	
Handle		304L stainless steel	
Optical filter		Glass	
LED protector		Transparent polycarbonate	
Foot		Polyvinylchloride (PVC)	
Labels		Polyester	
Screen		Protector polyester	
Front plate			304L stainless steel
Housing			Painted aluminum alloy
Window			Glass
Light guard			Clear polymethyl methacrylate (PMMA)

*The reader is supplied with its power cord according to region.

Support and services

Merck provides a comprehensive range of support and services to help you save your QC resources and facilitate the implementation of your EZ-Fluo™ system into your daily testing routine. Our highly experienced service teams can assist you with the following activities:

- Feasibility study and on-site evaluation
- Method development and method development consulting
- Equipment installation
- Operator training
- On-site system qualification (IQ/OQ)
- Yearly preventive maintenance
- Service plan

For further information on our support and services offering, please contact your local sales representative.

Ordering Information

Description	Qty./Pk	Cat. No.
EZ-Fluo™ System Kits		
EZ-Fluo™ System standard kit, including 1 reader, 1 camera and installation CD	1	**EZFKIT001WW***
EZ-Fluo™ Hardware		
EZ-Fluo™ reader	1	**EZFREAD01WW***
EZ-Fluo™ camera	1	**EZFCAM001**
Consumables		
EZ-Fluo™ Reagent Kit	57 tests	**EZFREAG57**
EZ-Pak® Filters 0.45 µm 47 mm black gridded	600	**MSP000814**
EZ-Pak® Filters 0.45 µm 47 mm white gridded	600	**EZHAWG474**
S-Pak® Filters 0.45 µm 47 mm black gridded	600	**HABG047S6**
S-Pak® Filters 0.45 µm 47 mm white gridded	600	**HAWG047S6**
Petri-Pad™ Petri dish, sterile, 47 mm	150	**PD20047S0**
Petri-Pad™ Petri dish, sterile, 47 mm	600	**PD20047S5**
EZ-Fluo™ Accessories		
EZ-Pak® Membrane Dispenser	1	**EZDISP001**
EZ-Pak® Dispenser Curve	1	**EZCURVE01**
EZ-Pak® Dispenser Curve (AC only)	1	**EZCURVEAC**
EZ-Stream® Pump	1	**EZSTREAM1**
Silicone Hose for EZ-Stream® Pump Autoclavable Internal diameter: 9.5 mm (⅜ in.) Length: 5.0 m (196.8 in.)	1	**STREAMTUB**
PVC Hose for EZ-Stream® Pump Not autoclavable Internal diameter: 9.5 mm (⅜ in.) Length: 3.0 m (118.1 in.)	1	**XX6700034**
Filter forceps	3	**XX6200006P**
Traceability labels Label Printing Software: available at **EMDMillipore.com**	1000	**TRLABEL01**

*Country code to be defined at ordering step.

EZ-Fit® Filtration Units blue base	Qty./Pk	Cat. No.
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 100 mL funnel, bulk packaging	48	**EFHAW100B**
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 100 mL funnel, individual packaging	48	**EFHAW100I**
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 250 mL funnel, bulk packaging	48	**EFHAW250B**
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 250 mL funnel, individual packaging	48	**EFHAW250I**
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 100 mL funnel, bulk packaging	48	**EFHAB100B**
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 100 mL funnel, individual packaging	48	**EFHAB100I**
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 100 mL funnel, bulk packaging	48	**EFHAB250B**
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 250 mL funnel, individual packaging	48	**EFHAB250I**

The blue EZ-Fit® Filtration Units come with pad.

EZ-Fit® Filtration Units pink base	Qty./Pk	Cat. No.
EZ-Fit® Filtration Unit, white membrane, 0.45 µm pore size, 100 mL funnel, individual packaging, no pad	48	**EFHVW10IS**
EZ-Fit® Filtration Unit, white membrane, 0.45 µm pore size, 100 mL funnel, multi packaging, no pad	48	**EFHAW10MS**
EZ-Fit® Filtration Unit, white membrane, 0.45 µm pore size, 250 mL funnel, bulk packaging, no pad	48	**EFHAW25BS**
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 100 mL funnel, multi packaging, no pad	48	**EFHAB10MS**
EZ-Fit® Filtration Unit, black membrane, 0.45 µm pore size, 250 mL funnel, bulk packaging, no pad	48	**EFHAB25BS**
EZ-Fit® Filtration Unit, white membrane, 0.22 µm pore size, 100 mL funnel, multi packaging, no pad	48	**EFGSW10MS**
EZ-Fit® Filtration Unit, white membrane, 0.22 µm pore size, 100 mL funnel, individual packaging, no pad	48	**EFGSW10IS**
EZ-Fit® Filtration Unit, white membrane, 0.8 µm pore size, 100 mL funnel, bulk packaging, no pad	48	**EFAAW10BS**
EZ-Fit® Filtration Unit, white membrane, 0.8 µm pore size, 250 mL funnel, bulk packaging, no pad	48	**EFAAW25BS**
EZ-Fit® Filtration Unit, black membrane, 0.8 µm pore size, 100 mL funnel, bulk packaging, no pad	48	**EFAAB10BS**
EZ-Fit® Filtration Unit, black membrane, 0.8 µm pore size, 250 mL funnel, bulk packaging, no pad	48	**EFAAB25BS**

The pink EZ-Fit® Filtration Units come without pad.

The EZ-Fluo™ rapid detection system and accessories

MerckMillipore.com/EZ-Fluo

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