EZ-Agarose® Electrophoresis System

USER MANUAL

EZBiolab®

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Safety Information

Always wear protective clothing when performing laboratory experiments. Wear gloves and eye protection; use all proper safety precautions when handling the gels. Please read the Material Safety Data Sheet (MSDS) for this product prior to use.

Ethidium bromide in the gel cassettes is a potential mutagen. Follow state and local guidelines for disposal of these materials.

Product

Description

EZBiolab's EZ-Agarose® Electrophoresis System is an innovative product designed to simplify electrophoresis. The system integrates running buffer with a precast gel to form a ready to use pre-fabricated single disposable unit. Because the buffer is preloaded and the gel is precast, you only need to load your samples to start a gel electrophoresis run. The EZ-Agarose System eliminates the tedious steps of system assembling, buffer preparation and gel casting and can be run using any power supply.

Compact:	All components including precast gel & running buffer are integrated into a single disposable unit.
Convenient:	EZ-Agarose gels are ready to use: just load your samples.
Fast:	EZ-Agarose gels can be run at lower voltage and electrophoresis is fast.
Long shelf life:	Gels are stable for 18 months.
Compatible:	EZ-Agarose gels are compatible with most common loading buffers and standard blotting methods.

Contents

Each package includes:

10 gel cassettes
Each cassette contains running buffer and an EZ-Agarose gel (with ethidium bromide) sealed with a buffer dam in a disposable tank.

1 buffer-dam opener

Specifications & Storage Conditions

Number of Wells:	10
Running Gel:	1% agarose (200 bp – 10 Kb) 2% agarose (100 bp – 2 Kb) 3.5% agarose (20 bp – 1 kb)
Dye:	Ethidium bromide
Buffer:	TBE
Maximum loading volume:	20 µL
Shelf Life and Storage:	Model L: 18 months Model R: 8 months Stored at 4 °C - 8 °C **Do not freeze**

Product use

For research use only; not intended for diagnostic use

Getting Started

You Will Need

- EZ-Agarose cassette (at room temperature)
- EZ-Agarose Electrode Cap (purchased separately – Cat. No. E207) includes pre-installed electrodes and two color-coded cables
- Electrophoresis power supply (any power supply can be used)
- Sample loading buffer (any sample loading buffer can be used; use EZ-Agarose Sample Loading Buffer for best results – Cat. No. LB2)
- DNA molecular weight markers (if using; DNA molecular weight markers are available from EZBiolab – Cat. No. MKD001)

Preparing Your Samples

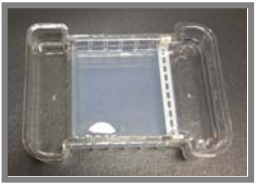
For best results, use sample loading buffer from EZBiolab. Other common sample loading buffers such TBE can also be used. Prepare samples according to standard protocols for agarose gel electrophoresis.

Preparing for Electrophoresis

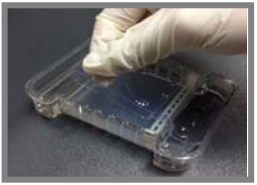
Opening the EZ-Agarose Cassette

1. Remove the EZ-Agarose Cassette from the package, and place it on a lab bench.

2. Remove the top seal slowly to avoid spilling the running buffer.



3. Remove the gel protector from the gel cassette.



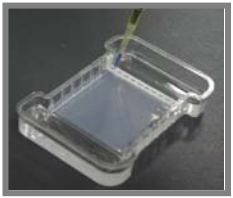
4. Model L only (for Model R, skip this section and go directly to the next section). The gel matrix is separated from the anode buffer reservoir (bottom of the gel) by a plastic block, i.e., the buffer dam. The buffer dam must be opened to allow the buffer to connect with the gel matrix for electrophoresis. The dam has been scored for easy opening. A special tool, the buffer-dam opener, is included in each package to facilitate this process.

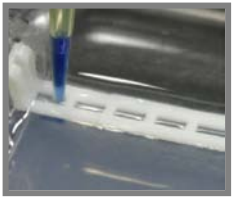
Insert the buffer-dam opener so that the dam is placed between the two blades of the buffer-dam opener. Firmly but slowly rotate the buffer-dam opener towards the far side of the gel to snap the buffer dam. Once the dam is opened, stop the rotation.

Note: The bottom of the buffer dam may still be attached and hang in the buffer reservoir. This will not interfere with electrophoresis.

Loading Your Samples

A sample loading guide has been built in the gel cassette to facilitate sample loading in the wells. The maximum loading volume is 20 μL.





Installing the EZ-Agarose Electrode Cap & Cables

1. Place the EZ-Agarose Electrode Cap, which contains the electrode wires, on the top of the cassette. This will result in the electrode wires being inserted into the buffer. Be careful not to spill the buffer. Make sure the cap is firmly positioned on the top of the cassette.

Note: If the buffer dam is still attached, it will be pushed to the bottom of the tray when the electrode cap is seated on the EZ-Agarose Gel Cassette. This will not affect the run.

2. Insert the female end of each color-coded cable onto one of the two electrode rods on the EZ-Agarose Electrode Cap and the male end of each cable into an appropriate slot in your power supply.

Running the EZ-Agarose Gel

Run gels at constant voltage. The recommended voltage is 120V for 20-minute run time. Voltage should not exceed 150 volts.

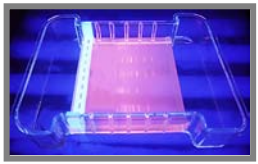
Note: The EZ-Agarose Gel Cassette has been designed so that small DNA fragments are as brightly stained by the ethidium bromide in the cassette as large fragments. To ensure evenly stained bands, run the electrophoresis until the tracking dye is at least ¾ of length of the gel.

The EZ-Agarose Cap has a window. This window can be opened during electrophoresis to observe the progress of the run if the EZ-Agarose Gel Cassette is placed on a light box.

Completing the Run

When the electrophoresis is completed: turn off the power; remove the lid and the buffer (see section below for disposal information).

Place the EZ-Agarose Gel Cassette on a light box to observe the results of the run. The gel can be photographed directly in the tray.



Downstream Processing

To recover bands of interest, cut out the bands and recover the DNA by any standard method.

Disposing of the EZ-Agarose Cassette Components

Dispose of all components except the EZ-Agarose Electrode Cap and color-coded cables. These can be reused for your next electrophoresis run.

Ethidium bromide in the gel cassettes is a potential mutagen. Follow state and local guidelines for disposal of these materials.

Troubleshooting & Technical Support

Problem	Cause	Solution
Running buffer was accidentally spilled during gel set up.		If buffer level is too low to run the gel, add TAE buffer to the desired level. The anode buffer tank (at the top of the gel) contains ethidium bromide. Please follow state and local guidelines to dispose of spilled buffer.
There is no current during an electrophoresis run.	The cable connections to the EZ-Agarose Electrode Cap or to the power supply may be loose.	Ensure that the cables are firmly connected to the EZ-Agarose Electrode Cap and the power supply. If this does not solve the problem, check the connection of electrode wires in the EZ-Agarose Electrode Cap.
The tracking dye in the loading buffer runs up instead of down.	Electrophoresis is running in the opposite direction. The power cables were not correctly connected.	Check to ensure the connection of each cable to the power supply is correct.
Small DNA fragments are not as bright as the large ones.	The gel was not run long enough for the small fragments to be uniformly stained	Run the gel until the tracking dye is at least three-quarters down the gel.
A blue band or irregular line is observed at the electrophoresis front during a run.	Although EZ-Agarose gels are compatible with most commonly used loading buffers, this band is observed with some loading buffers. The band is due to the tracking dye in the loading buffer.	The band will not affect the results because it runs faster than the DNA bands. The band can be avoided by using EZ-Agarose Sample Loading Buffer.

For technical support, contact EZBiolab: service@ezbiolab.com

Related Products

EZ-PAGE® Products		EZ-Agarose® Products	
EZ-PAGE Gel Cassettes	E301	EZ-Agarose Gel Cassettes	E201
EZ-PAGE Electrode Cap	E302	EZ-Agarose Electrode Cap	E207
EZ-PAGE Sample Loading Buffer (4x)	LB1	EZ-Agarose Sample Loading Buffer (5x)	LB2
Precise Protein M.W Marker (unstained)	MKP001	100 bp DNA M.W. Marker	MKD005
Low Range Protein M.W. Marker (unstained)	MKP002	250 bp DNA M.W. Marker	MKD004
Pre-stained Protein M.W. Marker	MKP003	1 Kb Plus DNA M.W. Marker	MKD001

Warranty & Liability

This product was produced utilizing the highest practical standards of materials, workmanship, and design. EZBiolab, Inc. warrants that the product has been tested and will meet or exceed published specifications. This warranty is valid only if the product has been operated and maintained according to the instructions provided.

EZBiolab warrants EZ-PAGE and EZ-Agarose Electrode Caps for one year from the date of shipment, and the disposable products to be free from defects in materials and workmanship under recommended storage and use conditions until the product expiration date. If the product proves defective during this period, EZBiolab, Inc., will repair or replace it at our option, free of charge. This warranty does not cover: damage in transit, damage caused by carelessness, misuse or neglect, normal wear through frequent use, damage caused by solvent corrosion, damage caused by improper handling or user alteration, nor unsatisfactory performance as a result of conditions beyond our control. EZBiolab, Inc., shall in no event be liable for incidental nor consequential damages, including without limitation, lost profits, loss of income, loss of business opportunities, loss of use and other related damages, however caused, nor any damage arising from the incorrect use of the product.

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