

# EZ-PAGE® Electrophoresis System

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USER MANUAL

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**EZ***Biolab*®

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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, staining/destaining, and drying the gels.

Please read the Material Safety Data Sheet (MSDS) for this product prior to use.

## Product

### Description

EZBiolab's EZ-PAGE 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. EZ-PAGE gels eliminate 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-PAGE gels are ready to use: just load your samples.

**Fast:** EZ-PAGE gels can be run at lower voltage and electrophoresis is fast.

**Long shelf life:** Gels are stable up to 18 months.

**Compatible:** EZ-PAGE gels are compatible with most common loading buffers, staining techniques, and standard blotting methods.

## Contents

Each package includes:

10 gel cassettes

Each cassette contains running buffer and a precast EZ-PAGE gel in a disposable tank.



1 Buffer-dam opener



## Specifications & Storage Conditions

Gel thickness:	1.5 mm
Number of Wells:	10
Stacking Gel:	1% polyacrylamide
Running Gel:	8%, 12%, or 6-18% polyacrylamide
Maximum loading volume:	30 $\mu$ L
Shelf Life:	18 months when stored at 4 °C - 8 °C 12 months when stored at room temperature

**Do not freeze.**

## Product use

For research use only; not intended for diagnostic use

## Getting Started

### You Will Need

- EZ-PAGE cassette (at room temperature)
- EZ-PAGE Electrode Cap (purchased separately – Cat. No. E303) 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-PAGE Sample Loading Buffer for best results – Cat. No. LB1)
- Protein molecular weight markers (if using; protein molecular weight markers are available from EZBiolab – Cat. No. MKP001)

Note: You may observe a white precipitate in the buffer tank when the gel cassette is removed from the refrigerator. The precipitate, which consists of crystals of SDS, may form if the gel cassette was stored below 4 °C; most crystals will dissolve when the gel cassette is warmed to room temperature. Any remaining crystals will not affect electrophoresis.

### Preparing Your Samples

For best results, use sample loading buffer from EZBiolab. Other common sample loading buffers such as the Laemmli buffer can also be used. Prepare samples according to standard protocols for SDS-PAGE.

Note: If you use a loading buffer other than the EZBioLab Loading Buffer, you may observe a broad blue band (due to the tracking dye in the loading buffer) at the bottom of the gel. The band will not affect results; this band runs faster than the protein bands.

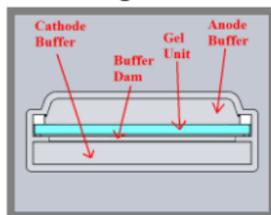
## Preparing for Electrophoresis

### Opening the EZ-PAGE Cassette

1. **Remove the seal:** Place the gel cassette straight up on a lab bench. Remove the top seal slowly to avoid spilling the running buffer.



Remove the top sealing film

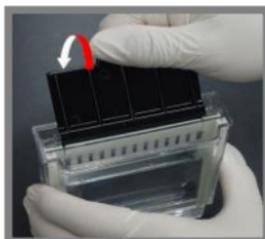


Top view

2. **Open the buffer dam:** The buffer dam is the top part of the central panel in the running cassette. During storage, it separates the gel matrix from the cathode buffer. The dam needs to be opened to allow the cathode buffer to connect with the top of 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 opener. Firmly but slowly rotate the opener towards the cathode buffer side (opposite side of the gel) to snap the buffer dam. Once the dam is broken, stop the rotation.

Rotate firmly  
but slowly



Buffer dam is broken



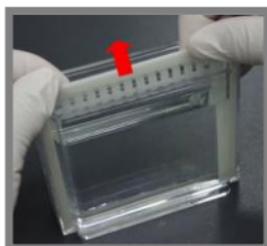
Note: The bottom of the buffer dam will probably be connected to the central panel and hang in the cathode buffer reservoir. This will not interfere with electrophoresis. Proceed to the next step.



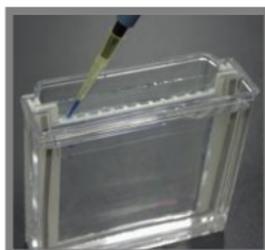
Alternatively, the buffer dam can be opened by hand.

## Loading Your Samples

Remove the comb and load your samples. A sample loading guide is built in for easy identification of the sample wells.



Remove the comb



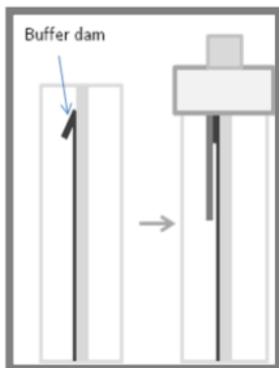
Load Samples

## Installing the EZ-PAGE Electrode Cap & Cables

1. Slowly place the EZ-PAGE Electrode Cap which contains the electrode wires on the top of the cassette; this will result in the electrodes 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.



Cover the running cassette with the EZ-PAGE electrode cap.  
The electrode rods are located in the cap.



Note: If the buffer dam is attached and hanging in the buffer, it will be pushed against the central panel when the EZ-PAGE Electrode Cap is seated on top of the tank. This will not interfere with electrophoresis.

2. Insert the female end of each color-coded cable into one of the two slots on the EZ-PAGE Electrode Cap and the male end into one of the appropriate slots in your power supply.

## Running the EZ-PAGE Gel

Run the gels at a constant voltage. The recommended voltage is 120 V. The voltage should not exceed 150 V. If >120 V, ice bath is recommended to reduce temperature and to increase band sharpness.

## Retrieving the EZ-PAGE Gel

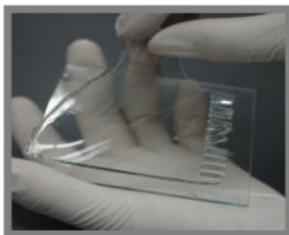
1. When the electrophoresis is complete, turn off the power, remove the EZ-PAGE Electrode Cap and pour out the buffer.
2. To release the gel sandwich, tip the support bars toward the middle of the cassette and remove the gel.



Release the gel sandwich

3. To release the gel, use an item such as the comb to loosen one corner of the gel sandwich and separate the glass plates. Retain the gel and the

EZ-PAGE Electrode Cap.



## Downstream Processing

The gels are ready for staining or for blotting using standard protocols.

## Disposing of the EZ-Gel Cassette Components

Once the gel has been removed from the glass plate, dispose of all remaining glass and plastic components except the EZ-PAGE Electrode Cap and color-coded cables. These can be reused for your next electrophoresis run.

**All plastic and glass parts are made from recyclable materials. Please recycle them.**

**Dispose of the buffer appropriately.**

## Troubleshooting & Technical Support

Problem	Cause	Solution
A white precipitate is observed in the buffer tank when the gel cassette is removed from the refrigerator.	This precipitate forms when the gels are stored below 4 °C.	The precipitate consists of crystals of SDS which will dissolve at room temperature. If any crystals remain once the gel cassette is at room temperature, they will not affect the electrophoresis run.
Running buffer was spilled during gel set up; <b>more than 50%</b> of the buffer remains in the tank.		Up to 50% of the original buffer volume can be replaced with distilled water. The gel will run normally under this condition but the run time will be longer than 40 minutes.
Running buffer was spilled during gel set up; <b>less than 50%</b> of the buffer remains in the tank.		EZ-PAGE Buffer A and Buffer B are available from EZBiolab. Fill the anode side with Buffer A and the cathode side with Buffer B.
There is no current during an electrophoresis run.	The cable connections to the EZ-PAGE Electrode Cap or to the power supply may be loose.	Ensure that the cables are firmly connected to the EZ-PAGE Electrode Cap and the power supply. If this does not solve the problem, check the connection of electrode wires in the EZ-PAGE 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.
A broad blue band is observed at the electrophoresis front during a run.	Although EZ-PAGE 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 protein bands. The band can be avoided by using EZ-PAGE Loading Buffer from EZBiolab. The band will not be observed if the electrophoresis is run for 60 minutes.

For technical support, contact EZBiolab: [service@ezbiolab.com](mailto:service@ezbiolab.com)

## Related Products

<u>EZ-PAGE® Products</u>		<u>EZ-Agarose® Products</u>	
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 (4x)	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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