m-PAGEL Instruction Manual

Aug. 5, 2025 .4th edition

1. Precautions for safe use of this product

To use this product safely, please read this instruction manual carefully first. Please refrain from operating the product until you fully understand the contents of this instruction manual. This instruction manual describes only how to use this product for the specified purpose. Please refrain from using the product for purposes or in ways not described in this instruction manual. If you use the product for purposes or in ways not described in this instruction manual, you are solely responsible for all necessary safety measures and unforeseen circumstances. Also, please carefully read and understand the instruction manuals of any devices you will be using at the same time.

2. Propose of use

"m-Pagel" is a pre-cast polyacrylamide gel for protein and nucleic acid electrophoresis. Please use the electrophoresis system dedicated for ATTO wide-size gels.

3. Package

Name	Size	Qty
m-PAGEL	Gel size 140(W)x83(H)x1mm(t) Glass plate size 160(W)x100(H)x2mm(t) (total 5mm)	6 plates/box

Electrode buffer : **Protein**： **EzRun** (Tris/Glycine/SDS)
Nucleic acid： **EzRun TG** (Tris/Glycine)

4.Componosition

Name	Main component
m-PAGEL	Polyacrylamide gel

This product doesn't contain any notifiable material exceeding to regulated amount for exclusion decided by PRTR Law, Poisonous and Deleterious Substances Control Act, and Industrial Safety and Health Law.

5. Storage

- Keep refrigerated(2-10˚C). Freezing will damage the quality of the product.
- The expiration date is indicated on the outer box and on the gel package.

6. Disposal method

- When disposing of reagents and plates, follow the disposal rules of your institution .
  Material Plate: Glass / Packaging: PET Nylon

7. Items required other than this product

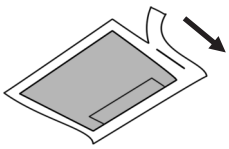
- ATTO electrophoresis apparatus for wide size gels
- Power supply（300V, 200mA or more output recommended）
- Electrode buffer etc.

8. Precautions for use

- Refrigeration at 2-10˚C is recommended for storage. Never place this product near a cold air outlet, as it may freeze even in a refrigerator.
- Please note that if frozen, the product will not be usable because of deformation due to air bubbles, plate peeling, swelling and shrinkage, etc.
- Please open the package just before use. The quality will deteriorate after opening, so please use it immediately.
- Handling this product with bare hands may cause injury. Wear rubber gloves and protective clothing when handling.
- The glass plate of this product cannot be reused. Dispose of it in accordance with the disposal rules of your institution.

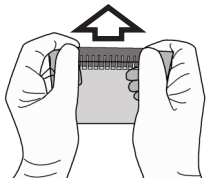
9. How to use

9-1. Preparation of gels and electrode buffer



1. Open the package and take out the gel.
   ∗ If it is difficult to cut, cut it with scissors.
   ∗ Please note that the gel may peel off from the glass if the gel is forcibly pulled out.

2. Slowly pull out the comb.
   ∗ Put your finger s on the two convex parts on the surface of the comb, align the left and right sides little by little, and slowly remove the comb. Be careful not to bend or cut the wells.



3. Prepare the electrode buffer corresponding to the sample treatment (with or without SDS treatment) and gel type.

- **SDS-PAGE**
  EzRun (Tris/Gly/SDS) or **EzRun MOPS** (Tris/MOPS/SDS)*
  ∗EzRun MOPS is not recommended for 5% 3-10% and 3-14% gels because it reduces the separation range of high molecular weight proteins.
- **Native PAGE**
  EzRun TG (Tris/Gly)
  ClearNative PAGE : **EzRun ClearNative** (Tris/Gly)
  BlueNative PAGE : **EzRun BlueNative** (Tris/Gly)
- **DNA electrophoresis**
  EzRun TG (Tris/Gly)
  EzRun MOPS non SDS

4. Wash the wells with electrode buffer.

9-2. Electrophoresis

1. Set the gel in the electrophoresis unit dedicated to ATTO mini-size gel, and add the electrode buffer solution.
   ∗ Set the gel according to the instruction manual attached to the electrophoresis apparatus.

2. Apply an appropriate volume of sample to each well.

＊The maximum apply volume is described as about 60% of the maximum capacity of the wells.

Comb（wells）	Well size	Maximum apply volume
30 wells	3(W)×10(H) mm	20μL

3. Set the power supply with reference to the table below.

Electrode buffer		Voltage	Current	Time
EzRun Tris/Glycine/SDS	C.V.	**300V setting**	At start：80-95mA At end：35-50mA	30-40 min
	C.V.	**150V setting**	At start：35-50mA At end：15-25mA	70-80 min
	C.C.	At start：80-100V At end：200-240V	**30mA/gel Setting**	70-80 min
EzRun MOPS Tris/MOPS/SDS	C.V.	**250V setting**	At start：100-150mA At end：40-75mA	25-35 min
	C.V.	**150V setting**	At start：50-80mA At end：20-45mA	50-60 min
	C.C.	At start：65-85V At end：130-180V	**30mA/gel setting**	75-85 min
EzRun TG (Nucleic acid) Tris/Glycine	C.C.	At start：120-150V At end：240-300V	**20mA/gel setting**	60-90 min
EzRun BlueNative EzRun ClearNative	C.V.	**150V setting**	At start：20-35mA At end：10-20mA	85-100 min

＊C.C. ; Constant Current ／ C.V. ; Constant Voltage

＊When using constant current (constant voltage) setting, set the voltage value (current value) referring to the table above.

＊Time, current and voltage values at start and end (actual measured values) are for your reference only.

＊For constant voltage setting, set the voltage to 150V,250V or 300V regardless of the quantity of gels. For constant current setting, calculate the quantity of gels x 30mA and set the current value. For example, if there are 2 gels, set the value to 60 mA.

＊When using Clear-Native PAGE, Blue-Native PAGE, and EzRun MOPS non-SDS, please perform electrophoresis according to the instruction manual for each electrophoresis buffer.

4. Turn on the power supply and start electrophoresis.

※Please note that the temperature of the electrode buffer may become high during energization.

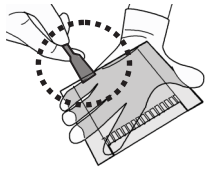
Depending on the number of gels, the buffer temperature may rise to around 30°C in the case of 150 V constant voltage and 30 mA/gel constant current setting, and to 35-50°C in the case of 300 V constant voltage setting.

9-3. End of electrophoresis

1. When the dye front reaches about 5 to 10 mm from the bottom edge of the gel, turn off the power and stop running.

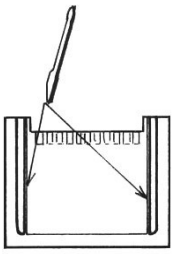
＊Please complete the electrophoresis operation according to the instruction manual attached to the electrophoresis device.

2. Remove the gel plate from the electrophoresis chamber and remove the gel from the gel plate. Insert a flat tool such as a spatula between the glasses and gently move it up and down to open the gel plate. Remove one piece of glass on the top.

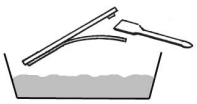


3. Make a notch between the gel and the spacer with a spatula or scalpel moistened with electrode buffer or staining solution.

＊If the spatula is dry, the gel will easily stick to the spatula and the gel may be damaged.



4. Transfer the gel to a container filled with staining or fixing solution. Hold the gel plate with the gel side facing down, insert a spatula between the gel and the gel plate, and peel off the gel.

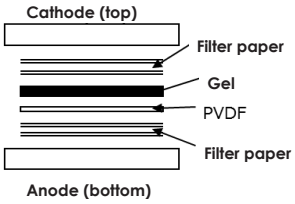


5. Gently shake the container to soak the entire gel in the staining solution. If the container is shaken vigorously, the gel may fold and stain unevenness may occur.

＊CBB staining, silver staining, reverse staining, fluorescent staining, etc. can be used.

9-4. Western blotting

1. The PVDF membrane is hydrophilized with methanol and equilibrated with blotting buffer. The filter papers are also soaked in blotting buffer.
2. Wash the gel after electrophoresis with blotting buffer.
3. Referring to the figure on the right, set the filter papers, PVDF membrane, and gel on top of each other in the blotting apparatus.
4. Remove excess solution and air with a roller.



5. Set power supply refer to the table below and start transferring.

		Filter paper	Voltage	Current	Time
Standard	c. v.	2-3 sheets × top and bottom	12 V	0.5 A/gel	EzBlot, EzFastBlot, HMW :30-60 min.
High speed	c. v.		20V	1.0 A/gel	EzFastBlot: 10-15 min. HMW: 15-30 min.
QBlot kit c	c.v.	Unnecessary	12V	0.6A	15-30 min.
			24V	1.1A	5-10 min.

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