MQ Easy Protein Pre-Cast Gel (4-12%)

Cat No. EPG-M-TG-10
Size: pack of 10 gels (8.2 x 10 cm)
Stored at 4°C up to one year

MOLEQULE-ON®

Description

The MQ Easy Protein Pre-cast Gel is a convenient and quick-to-use polyacrylamide gel. The pre-cast gel plate has a unique design with a special surface treatment that improves protein band resolution for a more even distribution of bands. The gel is based on the Tris system and works well with Tris-glycine SDS-PAGE standard electrophoresis buffer. Additionally, the product includes two bags of Tris-glycine SDS-PAGE high-resolution rapid electrophoresis buffer powder. This high-resolution rapid electrophoresis buffer has a strong buffering capacity and provides higher resolution, resulting in sharper and clearer protein bands. It does not contain SDS and can be used for native electrophoresis with appropriate electrophoresis buffers and corresponding reagents.

Specifications

- No. of wells: 11 or 15 wells
- Percentage: 4 - 12%
- Separation range: 10 kDa to 300 kDa
- Gel plate dimension: 8.2 cm x 10 cm
- Maximum loading volume of gel well: 40 µl
- Buffer: Tris-Glycine

Compatibility

- Bio-Rad Mini-PROTEAN® II & 3
- Bio-Rad Mini-PROTEAN® Tetra System
- MQ 2-Gels Vertical Gel Electrophoresis Unit
- MQ 4-Gels Vertical Gel Electrophoresis Unit

Procedure

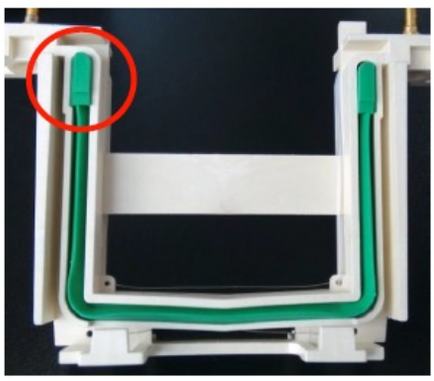
1. Prepare the electrophoresis buffer provided in the kit (Tris-glycine SDS-PAGE high-resolution rapid electrophoresis buffer) by dissolving it in pure water and adjusting the volume to 1 L. Take the MQ pre-cast gel out of its packaging and remove the adhesive tape from the bottom of the gel plate as demonstrated below.

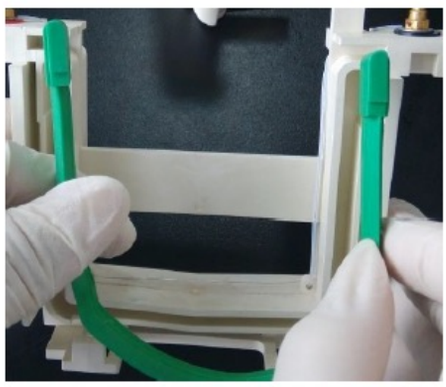
Peel off the tape at the bottom of the gel plate.

2. Carefully take out the combs from the gel plate, making sure to apply even pressure on both sides (see figure below). Place the gel plate into the gel electrophoresis apparatus.

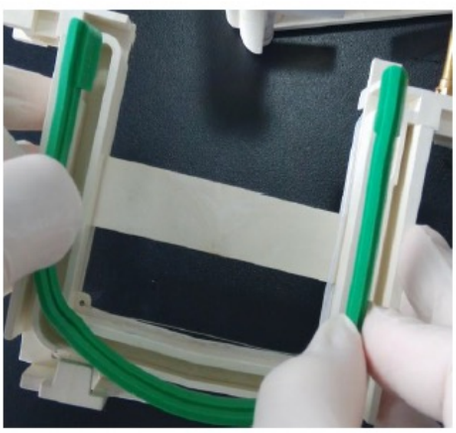
3. Application in Bio-Rad electrophoresis tank (As an example)

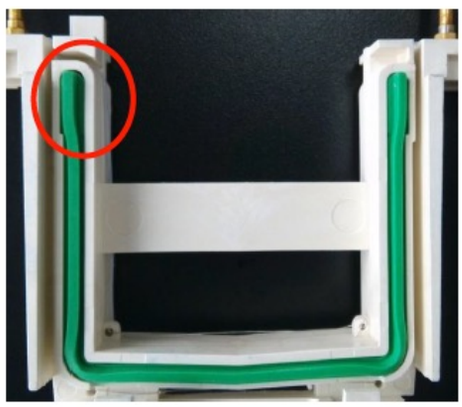
a. Pull out the U-shaped seal strip in the Bio-Rad electrophoresis tank (the green part in the picture), note that the side with protrusions at both ends is the front, and the side without protrusions is the back.





b. Rotate the seal strip by 180 degrees, then reinstall it into the electrophoresis tank. Make sure to press down on the edges of the seal ring to ensure a tight seal and prevent any leaks.





c. The above example outlines the steps for reversing the raised seal gasket in an electrophoresis apparatus. If there is no raised surface, you may proceed to the next step.

4. Pour enough 1X high-resolution rapid electrophoresis buffer (provided) or Tris-glycine standard electrophoresis buffer into the inner tank of the electrophoresis tank to fill it, and add the same buffer to the outer tank, ensuring the liquid level reaches the middle of the outer tank. It is important to note that the buffer in the outer tank should be added to a level lower than the inner tank liquid level and should not overflow the gel plate.
(Note: MOPS and MES electrophoresis buffers are not compatible with the Tris gel system of MQ pre-cast gel. Please use Tris-glycine electrophoresis buffer.)

5. Using a micropipette, carefully rinse the sample wells with an appropriate amount of electrophoresis buffer to remove any bubbles and residual liquid.

6. **Sample Preparation**

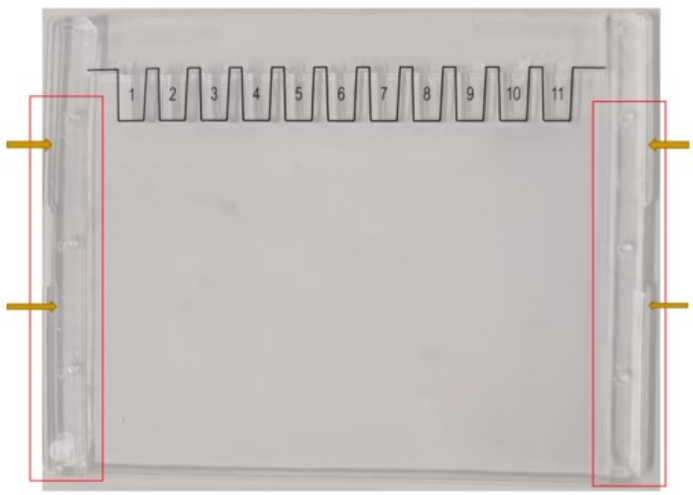
(a) For SDS-PAGE Gel Electrophoresis: Combine the protein sample with 2X or 4X SDS-PAGE protein loading buffer in a 4:1 volume ratio. Incubate the mixture at 100°C for 3-5 minutes using a metal bath or boiling water bath before loading for electrophoresis. The recommended total protein loading range is 1-100 μg.

(b) For Native PAGE Electrophoresis: Mix the protein sample with 2X or 4X protein loading buffer without SDS in a 4:1 volume ratio. Do not heat the mixture; ensure thorough mixing and use immediately for electrophoresis.

7. Sample Loading and Electrophoresis: When loading the sample, carefully insert the pipette tip vertically into the sample well to avoid damaging the gel matrix or causing sample leakage. Once loading is complete, cover the electrophoresis tank with the lid and connect the power cord to the electrophoresis apparatus (red to red, black to black).

8. Run electrophoresis at 120 V for 25-45 minutes or until the bromophenol blue dye front reaches the bottom of the gel.
Note: Adjust the electrophoresis voltage based on your experimental setup. Some apparatuses may have limited heat dissipation, so using excessively high voltage can lead to localized overheating and impact results. In such cases, reduce the voltage and consider running the electrophoresis in an ice bath.

9. Once electrophoresis is finished, take out the precast gel from the electrophoresis tank. Use a pry tool to carefully separate the plastic plates by inserting it into the gap between the gel plates (as shown in the red box in the figure) and gently prying open from top to bottom until fully separated.



Pry open the gel plates (using one side as an example,
repeat this step for the other side)

10. Remove the gel from the buffer for staining or further transfer procedures.

For western blotting, these pre-cast gels have been optimized in a semi-dry blotter using MQ PVDF Pre-Cut Blotting membrane at 12V for 30 minutes.
Note: Each laboratory should optimize these parameters according to their own setup.