

Mini-PROTEAN Precast Gels

Quick guide

Instructions for Using Mini-PROTEAN™ Precast Gels

1 Remove comb

Position thumb on indentation (middle of comb) and remove comb by pulling upward in one smooth motion.

2 Remove tape

Pull the green tape gently to remove it from the bottom of the cassette.

3 Assemble Mini-PROTEAN Tetra Cell

Assemble the cassette into the running module of the Mini-PROTEAN Tetra System. Add running buffer to the inner and outer chambers. Use a syringe or a disposable transfer pipet to rinse the wells with running buffer.

4 Run gel

Prepare the samples and load into the wells. If using Bio-Rad [Precision Plus Protein Standards](#), load 10 μl (5 μl for Precision Plus Protein WesternC Standards). Run the gel until the dye front reaches the reference line. Refer to the [Mini-PROTEAN Precast Gels Instruction Manual and Application Guide](#) for more information on running conditions. At the completion of the run, disconnect the cell and remove the cassette.

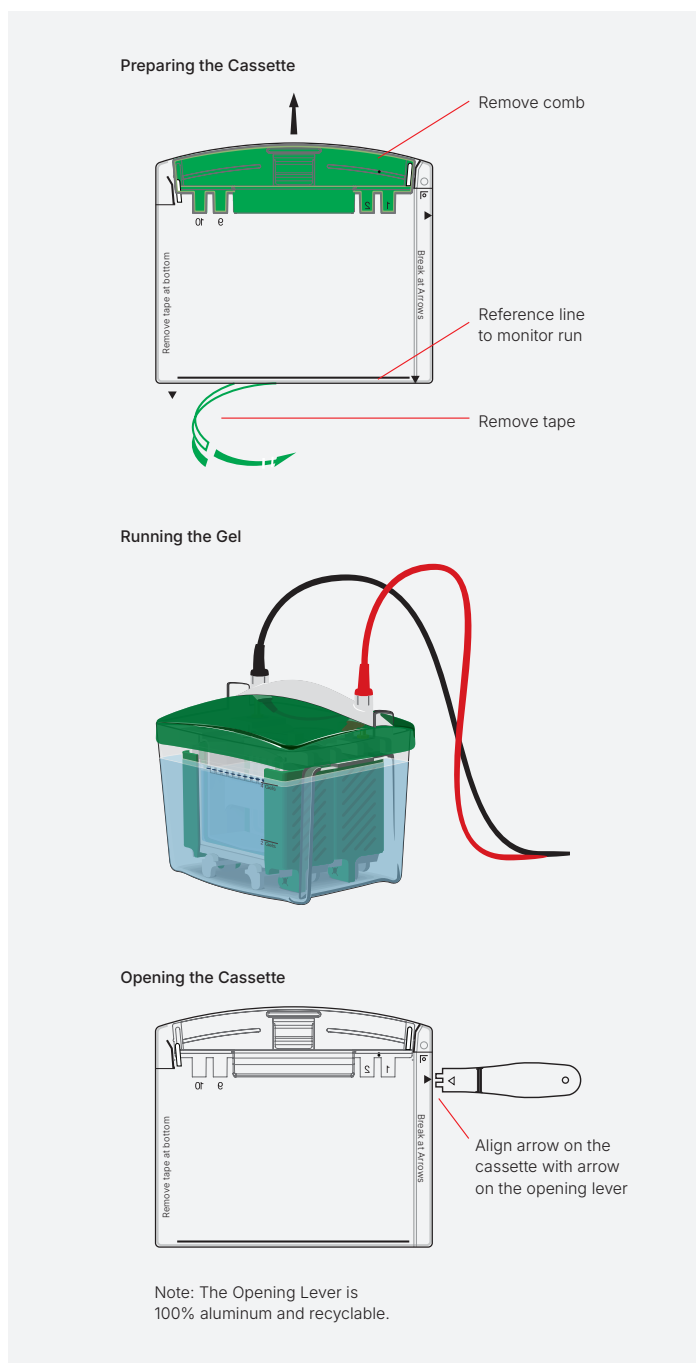
5 Open cassette

Align the arrow on the Mini-PROTEAN Cassette Opening Lever ([catalog #4560000](#)) with the arrows marked on the cassette. Insert the lever between the cassette plates at the indicated locations and apply downward pressure to break the seal. Gently pull apart the two plates beginning from the top of the cassette.

6 Remove gel

Gently remove the gel from the cassette.

Note: If using [Mini-PROTEAN TGX Stain-Free Gels](#), remove the gel from the cassette and activate it using a Stain-Free-enabled imager (ChemiDoc™ MP ChemiDoc Go, or GelDoc™ Go System).



Sample Preparation

The instructions in Table 1 are for electrophoresis of long shelf life Mini-PROTEAN TGX Precast Gels using the Mini-PROTEAN Tetra Cell.

Table 1. Sample preparation steps.

	Reagent	Reduced Sample, μ l	Nonreduced Sample, μ l
Prepare samples	Sample	5	5
	2x Laemmli Sample Buffer (#1610737)*	4.75	5
	2-mercaptoethanol** (#1610710)	0.25	—
	Total volume	10	10
Heat samples at 90–100°C for 5 min			
Prepare running buffer	Prepare 1x Laemmli SDS-PAGE running buffer by adding 100 ml 10x Tris/Glycine/SDS (TGS) Running Buffer (#1610732) to 900 ml deionized water.		
Load running buffer	Remove the comb and tape from the bottom of the gel as described on page 1 and assemble the Mini-PROTEAN Tetra Cell. Fill the upper (inner) buffer chamber of each core with 200 ml 1x TGS Running Buffer. Fill the lower (outer) buffer chamber as indicated in the Running Conditions table.		
Load sample	Load the appropriate volume of your protein sample on the gel and run the gel.		

* 4x Laemmli Sample Buffer is also available premixed (#1610747). See the 2x and 4x [Laemmli Sample Buffer Instruction Manual](#) for instructions on use.

** Dithiothreitol (DTT) (#1610611) may also be used as a reducing agent instead of 2-mercaptoethanol (BME). If so, mix the sample with 2x Laemmli Sample Buffer at a 1:1 ratio and add DTT to a final concentration of 100 mM.

Visit [bio-rad.com/ProteinGels](https://www.bio-rad.com/ProteinGels) for more information.

Running and Transfer Conditions for Mini-PROTEAN Gels

Table 2 shows running conditions for Mini-PROTEAN gels using low voltage, standard, and rapid protocols.

Table 2. Running conditions.

	100 V Low Voltage	200 V Standard	300 V Rapid 1	400 V Rapid 2
Run time, min	85–95	30–40	15–20	10–15
Expected current (per gel), mA				
Initial:	15–20	25–50	55–75	89–140
Final:	5–10	20–31	45–70	81–127
Expected temperature, °C	25	25–35	30–45	40–55
Lower buffer volume (for 2 gels), ml	550	550	800	800
Lower buffer volume (for 4 gels), ml	800	800	800	800

Note:

- When running only 1–2 gels in the Mini-PROTEAN Tetra Cell, do not leave the companion module in the tank.
- Do not run different gel types (chemistries) or percentages at the same time.

For detailed instructions, refer to the [Mini-PROTEAN Precast Gels Instruction Manual and Application Guide](#), or contact [Technical Support](#).

Table 3 shows transfer conditions recommended for Mini-PROTEAN standard and rapid protocols.

Table 3. Recommended transfer conditions.

Method	Standard Condition	Rapid Condition
Tank blotting	100 V, 30–60 min	150 V, 15–30 min*
Semi-dry	15–25 V, 15–30 min	0.25 μ l

For more information, refer to the [Bio-Rad Protein Blotting Guide](#).

* This process is protein dependent.

Tank Blotting Protocol

Follow these instructions when using the Mini Trans-Blot™ Electrophoretic Transfer Cell (#1703930).

- Prepare 1 L of a 1x transfer buffer by diluting 100 ml 10x Tris/Glycine Buffer (premixed) (#1610734) with 700 ml water and 200 ml methanol. Refer to the [Mini Trans-Blot Electrophoretic Transfer Cell Instruction Manual](#) for alternative transfer buffer formulations
- Rinse gels briefly in water and equilibrate in 1x transfer buffer for 15 min
- Soak 2 pieces of filter paper (the same size as the gel), 2 foam pads, and nitrocellulose membranes in 1x transfer buffer until wet; if PVDF is used, activate the PVDF by soaking it in 100% methanol briefly, then equilibrate in transfer buffer
- Open the cassette and place in a tray filled with transfer

- buffer; place a foam pad on the black side of the cassette
- Place a piece of filter paper on top of the foam pad, then carefully place the gel on top of the filter paper; remove bubbles with a Roller (#1651279)
 - Carefully place the membrane on top of the gel; if possible, do not move the membrane after it is positioned, and roll out air bubbles
 - Place a second piece of filter paper on top of the membrane, remove bubbles by rolling, and place the second foam pad on top of the filter paper
 - Close the cassette and insert into the tank (the black side of the cassette should face the black side of the central core)
 - Insert frozen cooling unit
 - If transferring more than one gel, repeat the above steps with a second cassette
 - Add transfer buffer to the tank until the buffer level reaches the upper fill line
 - Place the lid on the tank to complete assembly
- Place the second piece of filter paper on top of the gel and use a Roller (#1651279) to remove any bubbles that may have formed between the stacks
 - Carefully place the cathode assembly onto the transfer stack and then place the safety cover back onto the unit
 - **Note:** If using the Trans-Blot SD Semi-Dry Transfer System and transfer packs, see bulletins 10016505 and 10019593.

Visit [bio-rad.com/TransBlotTurbo](https://www.bio-rad.com/TransBlotTurbo) for more information.

Visit [bio-rad.com/MPGels](https://www.bio-rad.com/MPGels) for more information.

Semi-Dry Transfer Cell Protocol

Follow these instructions when using the Trans-Blot SD Semi-Dry Electrophoretic Transfer Cell (#1703940).

- Prepare 1 L of a 1x transfer buffer solution by diluting 100 ml 10x Tris/Glycine Buffer (premixed) (#1610734) with 700 ml water and 200 ml methanol. Refer to the [Trans-Blot SD Semi-Dry Electrophoretic Transfer Cell Instruction Manual](#) for alternative transfer buffer formulations
- Rinse gel briefly in water and equilibrate in 1x transfer buffer for 15 min
- Soak 2 pieces of precut extra thick filter paper (the same size as the gel) and nitrocellulose membrane in transfer buffer until wet; if PVDF is used, activate the PVDF by soaking in 100% methanol briefly, then equilibrate in transfer buffer
- Place 1 filter paper on the anode side of the semi-dry apparatus
- Place membrane (PVDF or nitrocellulose) on top of the filter paper
- Carefully place gel on top of the membrane

Ordering Information

Catalog #	Description	Catalog #	Description
1658004	Mini-PROTEAN Tetra Cell for Mini Precast Gels, 4-gel system includes electrode assembly, companion running module, tank, lid with power cables, mini cell buffer dam	1610732	10x Tris/Glycine/SDS Running Buffer
1658005	Mini-PROTEAN Tetra Cell for Mini Precast Gels, 2-gel system includes electrode assembly, clamping frame, tank, lid with power cables, mini cell buffer dam	1704150	Trans-Blot Turbo Transfer System, blotting instrument includes base, 2 cassettes to hold 1 or 2 midi or up to 4 mini blotting sandwiches, blot roller
4560000	Mini-PROTEAN Cassette Opening Lever	1703930	Mini Trans-Blot Electrophoretic Transfer Cell, gel transfer cell for two 10 x 7.5 cm gels, includes 2 gel holder cassettes, foam pads, electrodes, tank, blue cooling unit, lid with cables
1653320	Gel Releasers	1703940	Trans-Blot SD Semi-Dry Electrophoretic Transfer Cell, semi-dry electrophoretic transfer cell includes agarose gel support frame, extra thick blot paper in 4 sheet sizes
1651279	Roller		



Description	10-Well 30 µl	10-Well 50 µl	12-Well 20 µl	15-Well 15 µl	IPG Well 7 cm IPG Strip
Mini-PROTEAN TGX Precast Gels (pkg of 10)					
7.5% Resolving Gel	4561023	4561024	4561025	4561026	4561021
10% Resolving Gel	4561033	4561034	4561035	4561036	4561031
12% Resolving Gel	4561043	4561044	4561045	4561046	4561041
4–15% Resolving Gel	4561083	4561084	4561085	4561086	4561081
4–20% Resolving Gel	4561093	4561094	4561095	4561096	4561091
8–16% Resolving Gel	4561103	4561104	4561105	4561106	4561101
Any kD Resolving Gel	4569033	4569034	4569035	4569036	4569031
Mini-PROTEAN TGX Stain-Free Precast Gels (pkg of 10)					
7.5% Resolving Gel	4568023	4568024	4568025	4568026	4568021
10% Resolving Gel	4568033	4568034	4568035	4568036	4568031
12% Resolving Gel	4568043	4568044	4568045	4568046	4568041
4–15% Resolving Gel	4568083	4568084	4568085	4568086	4568081
4–20% Resolving Gel	4568093	4568094	4568095	4568096	4568091
8–16% Resolving Gel	4568103	4568104	4568105	4568106	4568101
Any kD Resolving Gel	4568123	4568124	4568125	4568126	4568121
Mini-PROTEAN Precast Gels (pkg of 2)					
5% TBE	4565013	4565014	4565015	4565016	—
10% TBE-Urea	4566033	—	—	4566036	—
15% TBE-Urea	4566053	—	4566055	—	—
16.5% Tris-Tricine	4563063	4563064	4563065	4563066	—

Visit [bio-rad.com/MPGels](https://www.bio-rad.com/MPGels) for more information.

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