



YamayBio

# **GelMaster Tris-Acetate Gel Kit**

(For Use with the GelMaster46 System Only)

QUICK START GUIDE

For research use only.  
Not for use in diagnostic procedures.

# Contents and Storage

GelMaster Tris-Acetate Gel Kit, GRF2601

**Storage:** The enhanced catalyst should be stored at  $-20^{\circ}\text{C}$  for up to 18 months. All other components should be stored at  $4^{\circ}\text{C}$  for up to 18 months. The product is shipped at room temperature.

| Component                 | Cat. No. | Volume |
|---------------------------|----------|--------|
| TA Stacking Buffer        | GRF2602  | 100mL  |
| TA Casting Buffer         | GRF2603  | 100mL  |
| TA Low-Conc. Res. Buffer  | GRF2604  | 170mL  |
| TA High-Conc. Res. Buffer | GRF2605  | 80mL   |
| Enhanced Catalyst         | RF1500   | 8 mL   |

**Capacity:** The total number of mini gels may vary based on the gel thickness and percentage. One kit typically yields:

| Thickness | Percentage | Number* |
|-----------|------------|---------|
| 1.00 mm   | 4-8%       | 40      |
|           | 7%         | 40      |
| 1.50 mm   | 4-8%       | 30      |
|           | 7%         | 31      |

\*Estimated based on continuous gel casting using  $8.6 \times 6.7$  cm plates.

## Introduction

Designed exclusively for the GelMaster46 System, this kit is optimized for the exceptional separation of large molecular weight proteins while remaining fully compatible with standard Tris-Acetate running buffer as well as our designated running buffer ([YamayBio, MS8136](#)). To streamline gel preparation, the kit features a pre-colored stacking gel for effortless sample loading and replaces traditional TEMED with an odorless catalyst enabling rapid gel polymerization within 15–30 minutes at room temperature. Integrated stain-free technology allows direct visualization of protein bands under UV light (302 nm) immediately after electrophoresis without additional staining.

# Quick Protocol

## Step 1: Prepare the Reagents and Gel Modules

1. Add **3.4 mL** of Enhanced Catalyst to the TA Low-Conc. Resolving Buffer (Cat. No. GRF2604). Record the necessary information on the bottle label.
2. Insert the system tubing into the corresponding reagent bottles.
3. Allow all reagents to equilibrate to room temperature before use.
4. Prepare the required gel modules.

### Notes:

Storage & Usage Guidelines:

- Opened buffers: Once opened, GRF2602, GRF2603, GRF2604, and GRF2605 may be stored at 4°C for up to 3 months, or at room temperature for 1 month. The enhanced catalyst should be stored at -20 °C for up to 12 months.
- Infrequent use: For infrequent use, it is recommended to aliquot the buffer. Prior to use, add the catalyst to the TA Low-Conc. Res. Buffer (GRF2604) at a 50:1 ratio.

## Step 2: Select Gel Parameters

1. Turn on the GelMaster46 instrument.
2. Tap "Casting" on the home screen.
3. Select the gel size, thickness, kit type, method, and number of gels.
4. The software will automatically calculate the minimum required reagent volume.

## Step 3: Gel Casting

1. Insert the gel module and tap "Cast" in the menu bar.
2. Follow the on-screen prompts to replace the gel module and continue the casting process.
3. Carefully insert the comb into the gel and allow the gel to polymerize for 15 to 30 minutes.
4. The gels can be stored at 4°C in a sealed, moisture-retaining condition for up to 1 month.

# Troubleshooting

| Observation                                     | Cause                                                                                                                                                   | Solution                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Gel does not polymerize or polymerizes unevenly | <ul style="list-style-type: none"><li>• Incorrect catalyst volume</li><li>• Catalyst inactive or expired</li></ul>                                      | <ul style="list-style-type: none"><li>• Adjust catalyst volume as needed. Higher temperature accelerates polymerization (reduce catalyst), while lower temperature slows it (increase catalyst).</li><li>• Store catalyst properly to maintain activity.</li></ul>                                                                                    |
| Air bubbles in gel                              | <ul style="list-style-type: none"><li>• Air bubbles form within solution or between solution and plates</li><li>• Gel polymerizes too quickly</li></ul> | <ul style="list-style-type: none"><li>• Avoid vigorous mixing after adding catalyst; mix gently.</li><li>• Minimize repeated opening / closing of reagent bottles to reduce air introduction.</li><li>• Allow reagents to equilibrate to room temperature before use.</li><li>• Reduce catalyst volume to slow polymerization if necessary.</li></ul> |
| Uneven gel (inhomogeneous gel matrix)           | <ul style="list-style-type: none"><li>• Movement or vibration during polymerization</li><li>• Residual liquid remaining on the glass plates</li></ul>   | <ul style="list-style-type: none"><li>• Keep the gel casting system undisturbed until complete polymerization.</li><li>• Ensure glass plates are clean and dry before casting.</li></ul>                                                                                                                                                              |