

ClearBand TAE 10x Electrophoresis Buffer

Troubleshooting Guide

500 mL, 1000 mL

Cat No: TAE105, TAE1010

Use this guide for common dilution and electrophoresis problems encountered with ClearBand TAE 10x Electrophoresis Buffer. The concentrate is intended to be diluted to 1x before use; the 1x composition is 40 mM Tris, 20 mM acetic acid, and 1 mM EDTA.

Before You Start - Quick Checks

1. Dilute the 10x concentrate to 1x before preparing the gel or filling the electrophoresis tank.
2. Use 1x TAE for both gel preparation and the running buffer.
3. Prepare the dilution accurately and mix thoroughly.
4. The datasheet recommends fresh 1x buffer for each electrophoresis application.
5. TAE is indicated for high-resolution agarose electrophoresis and high-molecular-weight double-stranded DNA.
6. Store the 10x concentrate at room temperature.

Problem	Most likely cause	Recommended action
DNA migration is unusually slow or abnormal	The concentrate may have been used without full dilution or the working buffer concentration may be incorrect.	Confirm that 10x TAE was diluted to 1x and that the same 1x buffer was used for gel preparation and the electrophoresis tank.
DNA bands are poorly resolved	The working buffer may be incorrectly prepared, reused, or not fresh.	Prepare fresh 1x TAE from the 10x concentrate and verify the dilution before repeating electrophoresis.
Run-to-run reproducibility is poor	Different working-buffer concentrations or reused buffer may have been used between runs.	Prepare fresh 1x TAE for each application as recommended and use the same preparation method each time.
Gel and tank buffers were prepared at different concentrations	A dilution error may have occurred in one of the two preparations.	Use 1x TAE for both the gel and the tank. Reprepare any solution of uncertain concentration.
Unexpected migration of high-molecular-weight DNA	The working buffer may be incorrect or the electrophoresis setup may not match the intended application.	Confirm use of fresh 1x TAE and verify the gel system. The datasheet identifies TAE as suitable for high-molecular-weight double-stranded DNA.
Buffer performance changes after repeated use	The datasheet recommends fresh 1x buffer for each electrophoresis application.	Discard used working buffer and prepare a fresh 1x dilution from the 10x concentrate.
Precipitate or visible contamination is present	The concentrate or working solution may have been contaminated or stored/handled improperly.	Do not use visibly contaminated working buffer. Prepare fresh 1x buffer from a clean stock and use clean labware.
Incorrect 1x buffer composition is suspected	A dilution/calculation error may have changed ionic strength.	Recalculate the 10x-to-1x dilution. The intended 1x composition is 40 mM Tris, 20 mM acetic acid, and 1 mM EDTA.
Gel results differ after switching from another buffer system	TAE and other electrophoresis buffers have different compositions and migration behavior.	Treat the switch as a new electrophoresis condition. Prepare fresh 1x TAE and interpret migration using the TAE-based system.
Working buffer volume was prepared inaccurately	The 10x stock may have been measured incorrectly.	Use accurate volumetric measurement when preparing 1x TAE and mix thoroughly before use.

Still having trouble? Prepare a fresh 1x dilution from the 10x concentrate, use the same 1x buffer in the gel and tank, and verify the dilution calculation. If the problem persists, remake both the gel and running buffer from fresh 1x TAE.