

ClearBand TBE 10x Electrophoresis Buffer Troubleshooting Guide

500 mL, 1000 mL, 5 x 500 mL, 5 x 1000 mL

Cat No: TBE500, TBE1000, TBE5005, TBE10005

Use this guide for common dilution and electrophoresis problems encountered with ClearBand TBE 10x Electrophoresis Buffer. The concentrate should be diluted to 1x before use; the 1x composition is 90 mM Tris, 90 mM boric acid, and 2 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 TBE for both gel preparation and running buffer.
3. Prepare the working solution accurately and mix thoroughly.
4. The datasheet recommends fresh 1x buffer for each electrophoresis application.
5. The 1x composition is 90 mM Tris, 90 mM boric acid, and 2 mM EDTA.
6. Store the 10x concentrate at room temperature.

Problem	Most likely cause	Recommended action
DNA migration is abnormal	The 10x concentrate may not have been diluted correctly to 1x.	Prepare fresh 1x TBE from the 10x stock and use it for both gel preparation and the running tank.
Bands are poorly resolved	The working buffer may be incorrectly prepared or reused.	Use a fresh, accurately prepared 1x TBE solution as recommended in the datasheet.
Run-to-run reproducibility is poor	Different 1x preparations or reused running buffer may have been used.	Standardize the 10x-to-1x dilution procedure and prepare fresh working buffer for each application.
Gel and tank buffers were prepared differently	A concentration mismatch may exist between the gel and running buffer.	Prepare both with the same 1x TBE working solution.
Unexpected electrophoresis behavior after dilution	A calculation or measurement error may have altered the final ionic composition.	Reprepare 1x TBE and verify the intended final composition: 90 mM Tris, 90 mM boric acid, 2 mM EDTA.
Buffer performance changes after reuse	The datasheet recommends fresh 1x buffer for each electrophoresis application.	Discard used working buffer and prepare fresh 1x TBE.
Visible contamination or precipitate is present	The stock or working solution may have been contaminated during handling.	Use clean labware and prepare a fresh 1x solution from uncontaminated stock.
Results change after switching from TAE	TAE and TBE are different buffer systems and can produce different migration behavior.	Treat TBE as a separate electrophoresis condition. Use fresh 1x TBE consistently in gel and tank.
Working buffer concentration is uncertain	The dilution may not have been documented or measured accurately.	Discard the uncertain solution and make a new 1x preparation from the 10x concentrate.
Samples show inconsistent migration across lanes	The issue may involve uneven gel/run conditions or inconsistent buffer preparation.	Confirm a uniform gel, adequate tank filling, and a correctly prepared fresh 1x TBE solution before troubleshooting sample-specific causes.

Still having trouble? Verify the 10x-to-1x dilution, prepare fresh 1x TBE, and use the same working solution for both the gel and the tank. If results remain inconsistent, remake the gel and running buffer together from a fresh 1x preparation.