

Recipes for TAE and TBE Electrophoresis Buffers

Agarose gels are generally run two types of electrophoresis buffers. Nucleic acid agarose gel electrophoresis is usually conducted with either Tris-acetate-EDTA (TAE) buffer or Tris-borate-EDTA (TBE) buffer. While TAE buffer provides faster electrophoretic migration of linear DNA and better resolution of supercoiled DNA, TBE buffers have a stronger buffering capacity for longer or higher voltage electrophoresis runs.

Note: Because of higher voltages and resulting higher currents often used with Sub-Cell® Model 96 and 192 cells, we recommend that only TBE buffers be used for electrophoresis with these specific systems.

Tris-acetate-EDTA (TAE) buffer

TAE is often prepared in concentrated stock solutions of 10x or 50x in the laboratory. A 1x working solution is prepared prior to electrophoresis.

Composition of 1x TAE buffer

- 40 mM Tris (pH 7.6)
- 20 mM acetic acid
- 1 mM EDTA

Preparation of 50x TEA stock solution

To prepare 1 liter of 50x TAE dissolve following components in 600 ml of deionized water:

- 242 g Tris base (FW = 121)
- 57.1 ml glacial acetic acid
- 100 ml 0.5 M EDTA (pH 8.0)

Adjust the final volume to 1 liter with deionized water.

To prepare a 1x working solution from 50x stock buffer mix 50x stock buffer with DNase free deionized water at 1:4 ratio.

Tris-borate-EDTA (TBE) buffer

TBE buffer can be made and stored in concentrated stocks of 5x or 10x.

Composition of 1x TBE buffer

- 89 mM Tris (pH 7.6)
- 89 mM boric acid
- 2 mM EDTA

Preparation of 10x TBE stock solution

To prepare 1 liter of 10x TBE dissolve following components in 600 ml deionized water:

- 108 g Tris base (FW = 121)
- 55 g boric acid (FW = 61.8)
- 40 ml 0.5 M EDTA (pH 8.0)

Adjust final volume to 1 liter with deionized water.

To prepare a 1x working solution from 10x stock buffer, mix 10x stock buffer with DNase free deionized water at 1:9 ratio.



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