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TBE buffer

Tris-Borate-EDTA buffer, aqueous solution

Product	Cat#	Package size
TBE buffer 10-time ready-to-use solution in PE bottle - Buffer grade	M3206.1000	1L
TBE buffer 10-time ready-to-use solution in PE bottle - Buffer grade	M3206.5000	5L
TBE buffer 10-time ready-to-use solution in PE bottle - Buffer grade	M3206.1010	10L
TBE buffer 10-time ready-to-use solution in cubitainer - Buffer grade	M3142.5000	5L
TBE buffer 10-time ready-to-use solution in cubitainer - Buffer grade	M3142.1010	10L
TBE buffer 10-time ready-to-use solution in PE bottle - Molbio grade	M3088.1000	1L
TBE buffer 10-time ready-to-use solution in PE bottle - Molbio grade	M3088.5000	5L
TBE buffer 5-time ready-to-use solution in PE bottle - Buffer grade	M3206.1000	1L
TBE buffer 5-time ready-to-use solution in PE bottle - Buffer grade	M3206.5000	5L
TBE buffer 5-time ready-to-use solution in PE bottle - Buffer grade	M3206.1010	10L
TBE buffer 5-time ready-to-use solution in cubitainer - Buffer grade	M3142.5000	5L
TBE buffer 5-time ready-to-use solution in cubitainer - Buffer grade	M3142.1010	10L

Product description

In molecular biology, TBE is used for agarose and polyacrylamide gel electrophoresis.TBE buffer is suitable when analyzing DNA fragments from PCR amplification, DNA isolation protocols, or DNA cloning experiments. It is adapted for separating smaller DNA fragments (less than 1500 bp on a 0.8% agarose gel). TBE is used in the pH range of 8.0 to 8.5.
Less than half of the tris and boric acid molecules are ionized, so that the ionic strength is much lower than the concentration of the buffer components thus limiting electric current.

TBE has a higher buffering capacity giving sharper bands compared to TAE (Tris/Acetate/EDTA) the commonly used electrophoresis buffer. TAE has a lower buffering capacity than TBE, but double-stranded, linear DNA migrates about 10% faster through TAE than TBE. If speed is a critical point the Genaxxon HiResolve buffer is even better as DNA migrates about 2-times faster using HiResolve buffer compared to TAE buffer.

The resolution of supercoiled DNA is better in TAE than TBE. TBE is used at a working concentration of 1-time for polyacrylamide gels and of **0.5-time for agarose gels**. In gel mobility shift assay or electrophoretic mobility-shift assay (EMSA) the working concentration of TBE is only 0.5-time or 0.25-time.

It is not recommended to use TBE for preparative agarose gel electrophoresis, since TBE might interact with agarose and therefore reduces the yield of nucleic acids to be recovered from the gel.

EDTA is added to minimize the aggregation potential of nucleic acids by magnesium ions in TBE as well as in TAE.

TBE is offered as a 5-time and as a 10-time concentrated solution which can be stored at RT (a precipitate may form when concentrated TBE (such as 10-time TBE solutions) is stored for long periods of time. In some cases, such cases precipitates may be re-dissolved by heating the concentrated buffer to about 50°C.

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Product Composition

	TBE 10-time solution	TBE 5-time solution
Tris	107.81g/L (0.89 mol/L)	53.91g/L (0.45 mol/L)
Boric acid	55.03g/L (0.89 mol/L)	27.52g/L (0.45 mol/L)
EDTA x Na2	7.44g/L (0.02 mol/L)	3.72g/L (.0.02 mol/L)
pH (20°C):	8.3 ± 0.2	8.3 ± 0.2
Working concentration:	0.25X to 1X	0.25X to 1X
Storage:	RT	RT

Tipps and hints

Sterilization can be performed by filtration or autoclaving. Filtrate the buffer solution through a 0.22µm filter into a sterile flask or autoclave for 15 to 20 minutes. Keep the buffer solution at +4°C.

Safety information

When working with chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles. For more information, please consult the appropriate material safety data sheets (MSDSs). These are available online as pdf-file or on request (info@genaxxon.com).