TAE buffer (Tris-Acetate-EDTA)

- Suits DNA electrophoresis on agarose gels in native conditions
- Better resolution of fragments greater than 12 kb
- pH (1X concentration) @ 25°C : 8.2-8.4
- Ultrapure Components

A pH adjusted solution of Ultra Pure Grade components, which when reconstituted to a working concentration, contains 0.040M Tris and 0.001M EDTA.

Description	Cat.#	Qty
TAE Solution 25X Concentrate	**UP892574**	1.6 L
TAE Powder	**892580**	1 u (40 L)
There is sufficient powder to make 40L, but smaller quantity can be prepared		
TAE Ready-pack	**665100**	2 packs (50 L)
Each pack makes 25L 1X (or 1L 25X), but smaller quantity can be prepared		

TBE buffer (Tris-Borate-EDTA)

- Widely used buffer for analysis of DNA by both acrylamide and agarose gel electrophoresis.
- High ionic strength liquid concentrate can be used to easily prepare a 1X working solution by diluting with distilled, de-ionized water.
- A single strength (1X) solution contains 0.089 M Tris Base, 0,089 M Borate and 0.002 M EDTA.
- pH (1 :10) @ 25°C : 8.2-8.4
- Ultrapure Components

Description	Cat.#	Qty
TBE Solution 10X Concentrate	**UP86510A**	5 L
	UP86510C	4 x 5 L
TBE Solution 5X Concentrate	**N14790**	1 L
	N14791	4 L
TBE Powder	**892533**	1 u (40 L)
There is sufficient powder to make 40L, but smaller quantity can be prepared		
TBE Ready-pack	**892535**	2 packs (20 L)
Each pack makes 10L 1X (or 1L 10X), but smaller quantity can be prepared		
TBE disodium Ready-pack	**473840**	2 packs (20 L)
Each pack makes 10L 1X (or 1L 10X), but smaller quantity can be prepared		

TTE buffer (Tris-Taps-EDTA)

- A specially formulated buffer for use with the ABI 377 DNA sequencer
- Increases read DNA lengths
- Consistent and reproducible results

Description	Cat.#	Qty
TTE Solution 10X concentrate	**R59980**	1 L
	R59981	5 L
TTE Ready-pack	**R59982**	1 Pack (10 L)
1 pack makes solution of 1L 10X		

Most applications in biotechnologies and biochemistry of proteins operate in aqueous solutions. This section presents a complete range of reagents to prepare adequate solutions for genomics and other biotech or biochemistry applications, including buffering agents, chelators, detergents.

Technical tip

Water is determinant for biological systems interactions, dissociating in H^+ and OH^- ions thus interfering with ions and charged biomolecules, but also interacting by Van der Waals forces to solvate biomolecules and by hydrophobic interactions to form micelles or precipitates
To that point, **buffers** are aqueous solutions containing partly neutralized weak acids or bases that show little change in pH (H^+ concentration) whatever ions are added, it is measured near the pKa of the buffering compound. The pH should be determined at the final temperature, in presence of salts (i.e. phosphate pH change with salts concentration).
Each application has requirements for buffer choice, starting with a pKa close to the desired midpoint pH of working range. Additionally, it should be compatible with chemical reactions (i.e. do not quench a chemical or enzymatic reaction), cell physiology, or further analysis (i.e. do not absorb light at used wavelengths, i.e. at 240-270nm for mass spectrometry)

Mineral buffers are widely used. As their pKa do not always suit at best, or as they can show interferences, one might consider "**Good's buffers**"(1) and "**Hydroxyl Derivative Buffers**" that have several advantages, and are also proposed with Ultrapure quality. A great benefit is that they have pKa values at, or near, physiological pH (between 6 and 8), and often have better compatibility in bioassays: these buffers are non toxic for cells, and are not absorbed through cell membranes. The concentration, temperature, and ionic composition of the medium have minimal effects on the buffering capacity. They are resistant to enzymatic and non-enzymatic degradation, furthermore they are essentially transparent to visible and ultraviolet light. Additionally, Hydroxyl Derivative Buffers developed by Fergusson *et al*. (2) were found to display even better chemical stability and improved solubility over Good's Buffers.

(1) Good N.E., *et al*; Biochemistry **5**:467 (1966)
(2) Ferguson W.J. *et al*; Anal. Biochem **104**:300 (1980)

Borate

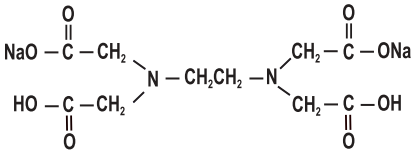
Borate buffered saline should not be used in the presence of polyols, including carbohydrates and their derivatives with which they may chelate. Borate buffers also have a high bactericidal effect. The use of borate buffers in gel electrophoresis of proteins can result in spreading zones.

Description	Cat.#	Qty
Boric Acid ACS Grade H_3BO_3 ; MW 61.83 pKa1(25°C)=9.24 DNase, RNase, Proteases free Purity 99.5 %	**UP070440**	1 kg
Citric acid $C_6H_8NO_7$, MW 192.13 pKa1(25°C)=3.01 , pKa2(25°C)=4.76 pKa3(25°C)=5.40 Purity : >99% DNase RNase, Proteases free Citrate is used notably for elution in affinity chromatography, but also for cell media.	**UP168781**	1 Kg
Detergents	See page 4xxx	

DTT

DTT is an important chaotropic agent used to destabilize disulfide bonds and disrupt tertiary structure in proteins.
While it is an effective protein denaturant at high concentrations, at low concentrations however, it acts to maintain native sulfhydryl groups, thereby preventing conformational changes at important active sites. The reducing power of DTT therefore makes it useful for protein structural analysis as well as for preserving biological activity in enzymes, antibodies, and growth factors.
Uptima's Biotechnology Grade DTT has particularly high purity (free sulfhydryl content > 99.4%) and very low UV absorptivity, important for spectrophotometric analysis. These qualities, coupled with a high solubility in water, make Uptima DTT an outstanding choice for your molecular biology applications.

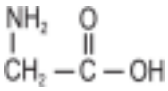
Description	Cat.#	Qty
DTT (1,4-Dithiothreitol)	**UP284250**	1 g
Biotechnology Grade	**UP284255**	5 g
$C_4H_{10}O_2S_2$; MW 154.25		



EDTA

Description	Cat.#	Qty
EDTA, Disodium Salt (EthyleneDiamineTetraAcetic acid)	**UP036290**	1 Kg

Biotechnology grade
$C_{10}H_{14}N_2O_8Na_2$. 2H20 ; MW 372.24
DNase, RNase : None detected
Chelator of divalent cations. Inhibits enzymes, such as metalloproteases, that require divalent cations for activity.
Suggested Starting Concentration : 0.2 - 0.5 mg/ml (0.5-1.3mM)



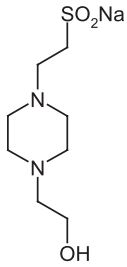
Glycine

Description	Cat.#	Qty
Glycine	**UP018225**	1 Kg

Biotechnology grade
$C_2H_5NO_2$; MW 75.07
Purity > 99.0 %
A280nm <0.15, A26nm <0.03
Glycine is used notably for elution in affinity chromatography, in electrophoresis buffers and in biochemistry (i.e. as quenching agent).

HEPES

HEPES has been described as one of the best all-purposed buffers available for biological research. At most biological pHs the molecule is zwitterionic, and is effective as a buffer at pH 6.8 to 8.2. HEPES has been used in a wide variety of applications, including tissue culture.
HEPES was the buffer of choice in a protein deposition technique in electron microscopy because it did not affect metal substrates. HEPES was evaluated and shown to be quite suitable for use with Ampholines in generating pH gradients less than 1 pH unit wide for isoelectric focusing applications.



Description	Cat.#	Qty
HEPES free acid	**UP061940**	250 g

2-[4-(2hydroxyethyl)-1piperazinyl]-ethanesulfonic acid
$C_8H_{18}N_2O_4S$; MW 238.3
pKa(25°C) : 7.5
Purity >99%
A280(1M, water) < 0.1
DNase RNase, Proteases free
Useful pH range is 6.8-8.2

HEPES sodium salt	**349411**	25 g
	349412	100 g
	349415	500 g

MOPS

MOPS is used for RNA electrophoresis in agarose. It is available in a free acid form, and works exceptionally well for formaldehyde gels at a 20 mM concentration. The free acid form must be adjusted to the working pH with an appropriate base such as sodium hydroxide, potassium hydroxide, or tetramethylammonium hydroxide.

Description	Cat.#	Qty
MOPS	**UP062000**	100 g

Ultra Pure Grade
3-(N-Morpholino Propane Sulfonic acid
$C_7H_{15}NO_4S$; MW 209.27
pKa(25°C)=7.2

Tel. 33 (0)4 70 03 88 55 ♦ Hot line : 33 (0)4 70 03 73 06 ♦ Fax. 33 (0)4 70 03 82 60

PIPES

PIPES is a member of the ethanesulfonic acid buffer series, first introduced by Good *et al.*, developed to meet certain criteria: midrange pKa, maximum water solubility and minimum solubility in all other solvents, minimal salt effects, minimal change in pKa with temperature, chemically and enzymatically stable, minimal absorption in visible or UV spectral range and easily synthesized. Since its pKa at 37°C is near physiological pH, it has applications in cell culture work. Buffers can be prepared by adding a solution of base to PIPES free acid, titrating to the appropriate pH, or by mixing equimolar solutions of the monosodium salt and the disodium salt, titrating to the appropriate pH.

Description	Cat.#	Qty
PIPES	**UP061980**	100 g
	UP061981	250 g

Piperazine-N,N¢-bis(2-ethane-sulfonic acid) ; 1,4-Piperazinediethanesulfonic acid
$C_8H_{17}N_2O_6S_2.1.5Na$; MW 335.37
pKa(25°C)=6.8
Purity (Anhydrous) 99.0 %
DNase, RNase, proteases free
Buffering range is 6.1 - 7.5 (at 25°C)

Technical tip

Glutaraldehyde fixation of plant and animal tissue samples can cause loss of lipid, leading to apparent morphological changes. Lipid loss and artifacts are minimized when PIPES was used to buffer the glutaraldehyde fixative. Alkaline phosphatase activity is lost selectively from certain rat hepatocyte organelles when fixed for ultracytochemistry with cacodylate-buffered glutaraldehyde. When PIPES was used as buffer, retention of activity was 60% greater. Fixation of fungal zoospores for fluorescence microscopy and electron microscopy was optimal with a combination of glutaraldehyde and formaldehyde in PIPES buffer.

PBS

PBS (Phosphate Buffered Saline Buffer) is used in various laboratory techniques, including immunodetection, biochemistry, purification, cell culture…
PBS is not recommended for detection with phosphatase alkaline. Phosphate buffer should not be used in assays where competition for phosphate groups, or complex formation with a metal ion is essential for the enzyme activation. Phosphate ions will inhibit carboxypeptidase, carboxylase, urease, muscle diaminase, formase and phosphoglucomutase.

Description	Cat.#	Qty
Phosphate Buffered Saline, Powder and 10X Ready-Pack	**687236**	10 L
Dissolve 9.88 g/L of 1X PBS.	**687237**	50 L
Each pack prepares 1 L of 10X PBS	**687234**	2 Pk
Phosphate Buffered Saline, 10X Liquid Concentrate	**N14010**	4 L
Phosphate Buffered Saline, 20X Liquid Concentrate	**N13760**	500 ml
	N13761	1 L
Phosphate Buffered Saline with Tween 20, pH 7.5	**N13810**	500 ml
	N13811	1 L
Phosphate Buffered Saline, Sterile 1X Solution, pH 7.4	**N13520**	100 ml
	N13521	500 ml
PBS Ultrapure, ready-to-use tabs	**UP307157**	100 tabs
1 tablet, when dissolved with distilled water, will give 100 ml of PBS		
PBS Ultrapure, powder packs	**UP68723A**	qsp 10 L
1 pack (9.88g), when dissolved with distilled water, will give 1L of 10X PBS, or 10L of 1X PBS		

Phosphate Buffered Saline (PBS)
1X PBS contains :
Sodium Chloride ..... 137 mM
Potassium Chloride ..... 2.7 mM
Phosphate Buffer ..... 10 mM

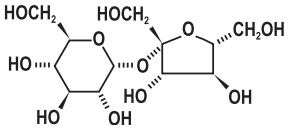
SDS (Sodium Dodecyl Sulfate)

Sodium Dodecyl Sulfate is a critical reagent in many molecular biology applications. It is widely known that the purity and C12 content dramatically affect the performance of this detergent. For example, contaminating levels of C16-alkyl sulfate particularly affect protein renaturation, and contaminating UV absorbing materials affect detection sensitivity. Additionally, heavy metals/chloride contaminants affect separation and enzymatic activities.
Biotechnology Grade SDS is especially high in both purity and C12 content. This nuclease and protease free material is ideally suited for nucleic acid purification, hybridization cocktails, electrophoresis, washing buffers and protein studies.

Sodium Dodecyl Sulfate

Description	Cat.#	Qty
SDS, powder	**UP649100**	500 g
SDS, 20 % solution	**UP896826**	500 ml
	UP896827	2 x 500 ml

Biotechnology grade
Purity > 99.0% ; C12 Content > 99.0%
DNase, RNase, Protease free
OD 260 and OD 280 (3% solution in water) > 0.1



DNA analysis - Electrophoresis

Buffers components

Sucrose

Description	Cat.#	Qty
Sucrose Ultra Pure Grade CAS [57-50-1] ; $C_{12}H_{22}O1_1$; MW 342.3 Purity 99.9 % DNase, RNase Not detected	**UP252031**	1 kg

TRIS

Tris(Hydroxymethyl)Aminomethane (TRIS) is an essential reagent used in the formulation of buffers for stabilization and electrophoresis of biological molecules.
Tris, Ultra Pure Grade is ideal for preparing nucleic acid or protein electrophoresis buffers.
Tris, Biotechnology Grade is nuclease and protease free for use in the most critical applications.

TRIS
$C_4H_{11}NO_3$
MW : 121.14
CAS : [77-86-1]
Purity : >99.9%

TRIS HCl
$C_4H_{11}NO_3$.HCl
MW 157.64
pH (0.1M, Water) @ : 25°C : 4.2-4.9

Description	Cat.#	Qty
Tris base Tris(Hydroxymethyl)Aminomethane) ; Ultra pure grade	**UP158387**	500 g
Tris base Tris(Hydroxymethyl)Aminomethane) ; Biotechnology grade	**UP031657** **UP031658**	1 Kg 5 x 1 Kg
Tris buffer 0.1M solution pH 7.4 nuclease free biotechnology grade	**587550** **587551**	500 ml 100 ml
Tris HCl Tris(Hydroxymethyl) Aminomethane HCl	**UP09154D** **UP09154E** **UP09154F**	500 g 1 kg 5 x 1 kg
Tris buffer 0.5M solution pH 6.8 biotechnology grade proteomics grade	**725200** **725201**	500 ml 500 ml
Tris buffer 1.0M solution pH 7.5 sterile ultra pure grade	**N13710**	100 ml
Tris buffer 1.0M solution pH 8 sterile biotechnology grade	**586780** **586781**	100 ml 500 ml
Tris buffer 1.0M solution pH 9 sterile ultra pure grade	**N13720**	250 ml
Tris buffer 1.0M solution pH 10 sterile ultra pure grade	**N13740** **N13740**	250 ml 250 ml
Tris buffer 2.0M solution pH 7.5	**N14620**	1 L
Tris buffer 2.0M solution pH 7.8	**N14610**	500 ml

Tris Buffer saline (TBS)

Tris buffers are preferred over phosphate buffers to avoid complex formation with ionic species such as calcium and magnesium in blood. It does not suits many biochemistry applications because it contains primary amine (interferes with amine reactive agents) and it's preciable solubility in organic solvents.

Tris Buffered Saline (TBS)
1X TBS contains :
Sodium Chloride : 140 mM
Potassium Chloride : 3.0 mM
Tris : 25 mM

Description	Cat.#	Qty
Tris Buffered Saline, 20X Liquid Concentrate	**N14580**	4 L
Tris Buffered Saline, 20X Ready-Pack™ Each pack prepares 1 L of 20X TBS	**740040**	2 packs

Urea

Used for the denaturation of proteins and as a mild solubilization agent for insoluble or denatured proteins. May be used with guanidine hydrochloride and dithiothreitrol (DTT) in the refolding of denatured proteins into their native or active form.

Description	Cat.#	Qty
Urea Ultra Pure Grade CH_4NO_2 ; MW 60,06 Purity > 99.5% DNase, RNase, protease free	**UP031903** **UP031904**	500 g 1 kg
Urea, 8 M Solution Urea 8M solution, proteomics grade	**N13830** **N13831**	250 ml 250 ml

A convenient pre-mixed solution that is easily diluted for buffer preparation under denaturing conditions.

Water

An essential reagent for all areas of molecular biology research. Nuclease-Free Water is specially prepared using diethylpyrocarbonate (DEPC) to ensure removal of RNase contamination.

Description	Cat.#	Qty
Water Nuclease free, Sterile, RNase-Free Solution	**457420**	500 ml

Tel. 33 (0)4 70 03 88 55 ♦ Hot line : 33 (0)4 70 03 73 06 ♦ Fax. 33 (0)4 70 03 82 60