Guide: Commonly used Buffers

Buffer	pH Range	Applications	Comments
PBS (Phosphate Bufferd Saline)	7.3-7.5	Cell culture, immunoassays, sample dilution and protein purification.	Isotonic and nontoxic buffer. Mimics pH, osmolarity and ion concentration of the human body. pKa 7.4. GoldBio Catalog # P-271.
Cacodylate	5.0-7.4	Electron microscopy and histology.	Substitute for Sorensen's buffer. Toxic. At low pH, oxidizes thiol groups and can inactivate enzymes that require reduced thiols. pKa 6.27.
Stripping buffer		Western blotting.	Components: Tris-HCl 1M, 20% SDS and β-mercaptoethanol. Prepare fresh prior to use. If antibody recovery from the membrane is desired, avoid SDS.
Transfer buffer		Western blotting.	Components: Tris-base 25mM, glycine 192mM, and 20% methanol.
Running buffer	8.3	Western blotting.	Components: Tris-base 25mM, glycine 192mM, and 0.1% SDS. Can be stored at room temperature. No pH adjustment is required.
Krebs-Henseleit bicarbonate buffer	7.4	Perfusion and isolation of muscle tissue.	Components: NaCl 118mM, KCl 4.7mM, $MgSO_4$ 1.2mM, $CaCl_2$ 2.5mM and $NaHCO_3$ 25mM. Equilibrate with 95% O_2 and 5% CO_2. Add $CaCl_2$ after all other compounds are dissolved. Add glucose for cell maintenance. Use immediately after preparation.
TE (Tris-EDTA buffer)	7.9-8.1	Storage of nucleic acids.	Components: Tris-Cl 10mM pH 7.4-8.0, EDTA 1mM pH 8.0. EDTA might affect downstream applications. Can be stored at room temperature for up to 6 months.

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TAE (Tris-acetate-EDTA buffer)	8.0-8.3	Agarose electrophoresis for the separation of nucleic acids (DNA and RNA).	Components: Tris base 40mM, acetic acid 20mM and 1mM EDTA. TAE has a lower buffering capacity than TBE. Can be stored at room temperature. Stock solution protocol.
TTE (Tris-TAPS-EDTA buffer)	8.3	Electrophoresis.	Components: 500mM Tris base, 500mM TAPS and 10mM EDTA. Can be stored at room temperature for up to 4 weeks or at 4°C for long term storage. Stock solution protocol.
TBE (Tris-borate-EDTA buffer)	8.3	Polyacrylamide gel electrophoresis for the separation of nucleic acids (DNA and RNA).	Components: Tris base 89mM, boric acid 89mM and EDTA 2mM. Used with denaturing and non-denaturing gels. Borate strongly inhibits enzymatic activity. Stock solution protocol.
TBST (Tris buffered saline with Tween® 20)	7.4-7.6	Western blotting and ELISA.	Components: Tris HCl 20mM pH 7.5, NaCl 150mM and 0.05-0.1% Tween® 20.
Tris-Glycine	8.3	Western blotting, SDS-PAGE, ion-exchange chromatography.	Components: Tris-base 25mM, glycine 250mM and 0.1% SDS.
Imidazole-HCl	6.2-7.8	Affinity chromatography and SDS-PAGE.	Binds various metals. Unstable.

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