Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Саранск (8342)22-96-24
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35
Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

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Технические характеристики на буферные растворы для клеточных культур, буферы для ПЦР, буферы HEPES и буферы для анализа компании Sigma-Aldrich

Table of Contents

Biological Buffers

Many biochemical systems and processes can be impaired by relatively small changes in the hydrogen ion concentration. Biological buffers provide solution stability and pH control without interfering with the biological processes of the medium. Moreover, buffers supply cofactors, critical salts, and nutrients essential for the viability of cells and tissues.

Higher Purity for Superior Stability

At Sigma-Aldrich®, we understand the importance of protecting the integrity of your biomolecules and reagents with the right buffering systems. We offer an extensive portfolio of biological buffers backed by in-depth scientific knowledge, analytical capabilities, and technical support: strengthened by decades of manufacturing these critical products.

Our high-purity buffers are characterized to assure minimal trace element levels, chemical impurities, and biological contaminants. Due to their impeccable lot-to-lot consistency, our products can be trusted to perform reliably every time. Their high solubility and solution clarity also ensure low background for ultra-sensitive spectroscopic and visual detection.

Complete Workflow Solution

Besides high-purity buffers, Sigma-Aldrich® supplies an extensive selection of high-quality biochemicals in various grades with innovative, user-friendly packaging options. In addition to off-the-shelf products, we provide custom reagent manufacturing, blending, and packaging to meet your exact needs. All of our chemicals and equipment can be scaled to optimize your workflows from early research to downstream production applications. Discover our unparalleled biochemical portfolio for your breakthrough ideas.

R&D

Optimize your development cycle with the convenience and availability of key R&D reagents.

Scale up

Simplify product selection and avoid unnecessary revalidation by identifying the right materials from the start with our guidance.

Manufacturing

Ensure risk mitigation, supply chain transparency, enhanced QC, and superior documentation with our expertise.

Packaging and Handling

Our buffers are supplied in an array of safe, reliable packaging options that are optimally suited to the product and its applications. For instance, liners used in our bulk products are classified as a secure seal to reduce the risk of contamination. We also offer innovative handling technologies, such as Redi-Dri™ and EZ BioPac®, as well as custom packaging options.

Current Standard Packaging	Buffer Form
Single-use pouches	Powder, crystals/granules
Glass bottles and vials	Liquid, powder
Plastic bottles	Liquid, powder, tablets, capsules, crystals/granules
Plastic pails (square and round)	Powders, crystals/granules
Plastic drums (square and round)	Powders, crystals/granules
Fiber drums	Powders, crystals/granules
EZ BioPac®	Bulk free-flowing transfer bags

Solutions

High quality Sigma-Aldrich® buffer solutions are available in various grades, concentrations, pH and pKa values, conveniently packaged in 1L, 4L or bulk volumes to suit your needs.

Tablets

Sigma-Aldrich® tablet products dissolve easily and are a convenient method to prepare buffer solutions with stable pH values.

Capsules

Our capsule formulations require no weighing, buffer calculations, or pH adjustments - for reproducible analysis again and again.

Pre-weighed Powders

Our pre-weighed packets are designed to simplify your buffer preparation. Strictly tested to ensure exact concentrations and pH levels, simply mix with water for reliable results.

Redi-Dri™ Free-Flowing Salts and Buffers

Keep Your Work Flowing

Our innovative Redi-Dri™ free-flowing, ready-to-use salts and buffers don't harden or clump like most hygroscopic powders.

Redi-Dri™ packaging innovation

Traditional packaging

Features and Benefits

- Reduce time, waste and costs due to easy handling: no need to loosen hardened powders from inside packaging
- No use of anti-caking agents that can compromise your research
- Excellent expert-tested quality
- Available in wide selection and flexible volumes for research and bulk production

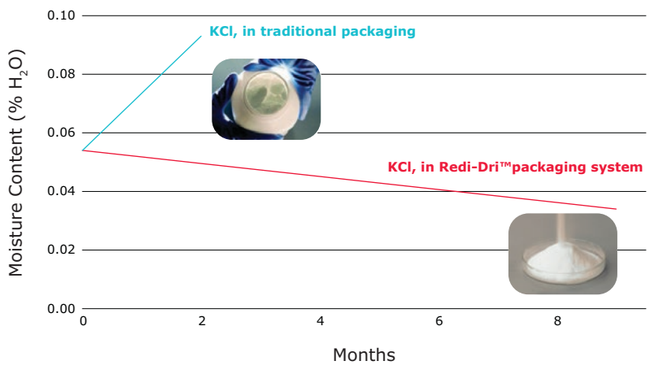
Our Most Popular Salts and Buffers

- **HEPES:** One of the best general purpose buffers available for bio-research
- **MOPS:** Component of running buffer in fractionation of RNA on formaldehyde agarose gels
- **Trizma® and Trizma® HCl:** Sigma-Aldrich® is the pioneer in Tris for laboratory and production use

Redi-Dri™ Packaging: Proven to Protect

A long-term study was done to compare a hygroscopic salt (KCl) in the Redi-Dri™ system to that in standard packaging. For nine months, loss of drying (LOD) was measured in both cases under humidity-controlled conditions. The results showed a stark difference. KCl in the traditional packaging appeared hard and clumpy, whereas the material in the Redi-Dri™ system had far lower LOD values, and remained free-flowing during the entire test period.

Moisture Content of KCl via Loss on Drying (LOD)
Redi-Dri™ Packaging vs. Traditional Packaging



pHast Pack™ Ready-to-Use Buffers

Buffer prep with no pH adjustment? No weigh!

Save time, effort, and shelf space with pHast Pack™ ready-to-use buffers. Our formulations are specially developed to simplify your work, and strictly tested to ensure exact concentrations and pH. No weighing, calculations, or pH adjustments. Simply mix with water for fast, reproducible analysis – every time.

Convenient

- Ready to use in 2 minutes
- No calculations, weighing, or pH adjustment
- Ideal for smaller volumes
- Simply dissolve pouch contents in 500 ml H_2O

High Quality and Reproducible Results

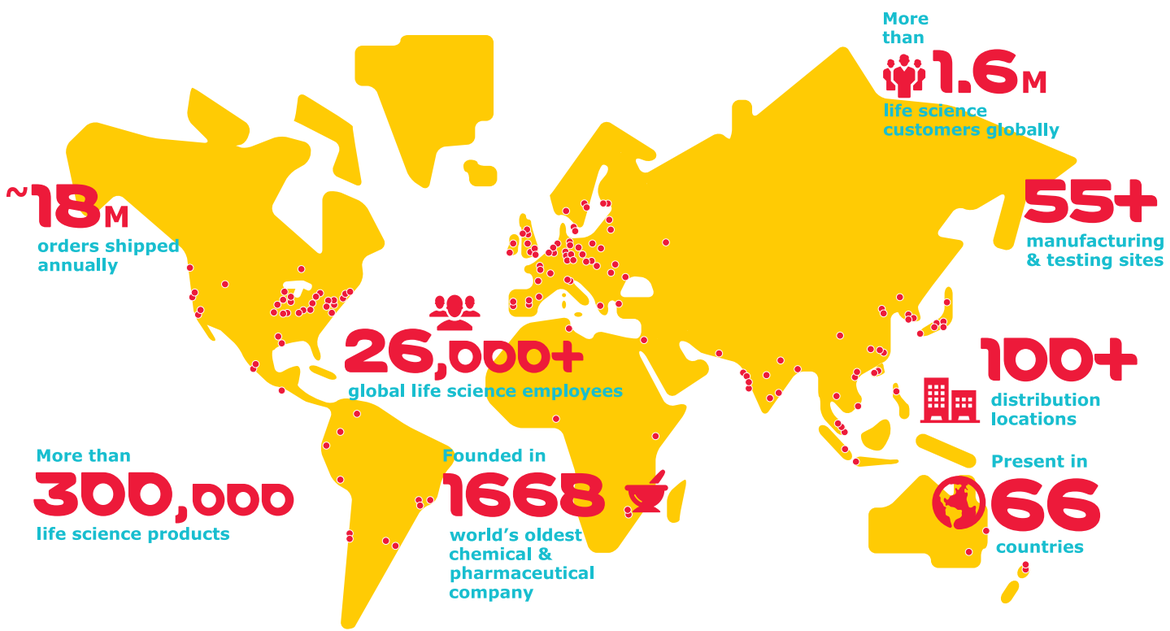
- **Stringent QC testing:** For unparalleled quality and reliability
- **Biological tests:** Free of DNAse, RNAse, protease, and nickase
- **Chemical tests:** Iron ≤10 ppm, lead ≤5 ppm
- **Physical tests:** pH, solubility, pouch weights
- **Application tests:** electrophoresis, cell culture suitability, etc.

Economical

- Lower labor costs through faster prep
- Minimize expenditure for multiple chemicals
- Reduce cost of repeat analysis due to faulty buffer prep

Cat. No.	pHast pack™ Buffer	Application
General Use		
PPB022-20PAK	0.1M Tris buffer, pH 7.0	Multipurpose
PPB023-20PAK	0.1M Tris buffer, pH 8.1	Multipurpose
PPB011-20PAK	Tris Buffered Saline (TBS), pH 7.6	Wash buffer
PPB001-20PAK	Tris Buffered Saline (TBS), pH 8.0	Wash buffer
PPB006-20PAK	Phosphate Buffered Saline (PBS), pH 7.4	Wash buffer
DNA Gel Electrophoresis		
PPB008-20PAK	Tris Acetate EDTA (TAE), pH 8.3	Running buffer
PPB009-20PAK	Tris Borate EDTA (TBE), pH 8.3	Running buffer
PPB010-20PAK	10X Tris EDTA (TE), pH 8.0	10X stock buffer
Western Blot		
PPB002-20PAK	Tris Buffered Saline with 0.05% Tween-20®, pH 8.0	Wash buffer
PPB005-20PAK	Phosphate Buffered Saline with 0.05% Tween-20®, pH 7.4	Wash buffer
PPB015-20PAK	Tris-Glycine (TG), pH 8.3	Running buffer
PPB019-20PAK	Bis-Tris Bicine EDTA (Bis-Tris), pH 7.2	Transfer buffer
Northern or Southern Blot		
PPB020-20PAK	Saline-Sodium Citrate (SSC), pH 7.0	Hybridization or Wash buffer
PPB021-20PAK	Saline-Sodium Phosphate-EDTA (SSPE), pH 7.4	Hybridization or Wash buffer

Robust Supply Chain for Reliable Scale Up



creating More value for you

Building a reliable supply chain together.

Because we understand how important on-time delivery is to you, we have centers of excellence around the world that provide a wide range of prompt and personalized services.

Get the results you expect each and every time with our expanded offering.

Our strengths

- Breadth and value of portfolio
- Robust supply chain
- Global manufacturing sites and distribution facilities
- Regional third party distributors

Our know-how

- Innovative R&D
- Data traceability and reliability
- Complete quality and safety solutions
- Technical, quality and regulatory expertise

Our assets

- Customized manufacturing and development materials
- 24/7 technical support and best-in-class customer service
- Consistency and reliability across geographies

Unparalleled Portfolio

As a leader in manufacturing and distributing high-quality biological buffers, Sigma-Aldrich® offers a comprehensive portfolio of solutions — available from a few grams to multi-metric tons — to serve virtually all applications from bench to bulk. Through our multiple production sites, stringent quality controls, and various product grades, we can cater to your exact requirements and always ensure a reliable, timely supply.

Complete Accreditations

- ISO9001:2008 life science
- ISO13485:2003 molecular diagnostics
- QC capability
- Packaging room certifications

Stringent Quality

- Over 80% of products made in-house
- Excellent product consistency
- Rigorous process and product controls
- Supplier qualification
- Change notification
- Risk mitigation
- Optimized packaging technology

Reliable Supply

- Broadest product offering in the industry
- Excellent supply chain security
- Shorter lead times and greater custom options
- Multiple parallel production lines and sites
- Unrivaled manufacturing capacity and flexibility
- Organic buffers: multiple sites in US and Europe
- Organic/inorganic buffers: Darmstadt, Germany

Darmstadt, Germany

St. Louis, Missouri, US

Buchs, Switzerland

Cleveland, Ohio, US

Complete Range of Bulk and Custom Services

Our extensive selection of high-purity buffers and high quality biochemicals can be scaled from early research quantities to commercial production volumes. Through custom reagent manufacturing, blending, liquid formulation, and packaging, we have the capabilities to meet your needs. Optimize your workflow through one trusted source from start to finish with our proven scaling abilities.

bulk

- Customized product testing
- Extensive optimized packaging options
- Made-to-order products, blends and solutions

Expert Guidance

Our technical support team is specialized in every stage of biopharmaceutical production. This means we can help you develop robust and scalable processes that get your products to market as quickly as possible. We are also happy to support you with risk assessment, developing custom packaging and equipment, and navigating regulatory changes.

Buffer Grades

Value & Price Level	Grade	Description	Typical Uses
High	BioUltra	Finest quality products for life science, with extensive trace metal analysis. Nuclease-, phosphatase- & protease-free. Other tests may include, but are not limited to, purity by gel electrophoresis, trace metal testing and application testing	For the most demanding applications such as Nucleic Acid & Protein Purification, Transformation/Transfection, Electrophoresis, PCR & Buffer Prep
	BioXtra	Stringent testing protocols include trace metal analysis. Specialized suitability testing, such as hybridoma or mouse embryo, may be included on certain products	Molecular Biology applications where trace metals are a concern
	BioPerformance Certified	Tested and pre-qualified for use in multiple life science applications	Molecular Biology, Cell Culture & Electrophoresis, Buffer Prep & Manufacturing
	BioReagent	Products with specifications or suitability testing for specific life science applications	General Life Science applications including Sample Prep, Purification, Buffer Prep, PCR, Flow Cytometry & Manufacturing
	Calbiochem® OmniPur®	Nuclease- and protease-free products to ensure the integrity of starting materials and improve downstream results	General Life Science applications & including Sample Prep, Protein Expression, Isolation, Analysis, Cell Culture, Transfection, Gene Expression, Electrophoresis & Western Blotting
	"meets analytical specification of Ph. Eur., BP, USP, …"	Non-GMP products that meet the latest testing specifications of the United States Pharmacopeia (USP), Food Chemicals Codex (FCC), National Formulary (NF), Pharmacopeia Europe (EP or Ph. Eur.), British Pharmacopeia (BP), and/or Japanese Pharmacopeia (JP)	For R&D and testing purposes only
	ACS	Meets ACS specifications	General Lab Use
Low	Reagent grade	Reagent grade, ReagentPlus, laboratory reagent and technical grades. Includes products that do not have an established standard set for quality and impurity levels	General Lab Use

Quality Levels

	Quality Levels					
	MQ 100	**MQ 200**	**MQ 300**	**MQ 400**	**MQ 500**	**MQ 600**
Application scope	For non-regulated applications with no change notification requirements	For non-regulated applications with limited change notification requirements	For products used in applications requiring enhanced change control and quality agreement	For critical products and applications driven by high expectations and requiring verified process control or manufacturing control	For regulated applications	For highly-regulated applications under authority surveillance
Discriminating features	Standard control	Increased control	Enhanced control	Driven by customer expectation	Driven by authority regulations	Driven by authority regulations and surveillance
Quality systems	ISO 9001	ISO 9001	ISO 9001	ISO 9001	IPEC GMP and/ or HACCP, FSSC 22000 and/or ISO17025 and/or ISO 13485	ICH Q7 or 21 CFR medical device
Quality attributes	✔	✔	✔	✔	✔	✔
Basic change control		✔	✔	✔	✔	✔
Enhanced level of control			✔	✔	✔	✔
Verified process				✔	✔	✔
Certified/ validated process					✔	✔
Highly regulated application						✔

Application Fields

Common Buffer Usage

Industries

- Research Academic and Government
- Pharmaceutical Manufacturing
- Life Science Manufacturing
- Diagnostic Manufacturing
- Biotechnology

Applications

- Crystallography
- Kit Development
- Western Blot
- PCR
- Molecular Biology
- Assay Development
- Protein Purification
- Electrophoresis
- Cell Culture

Companion Products

Detergents
- Tween®
- SDS
- Triton™
- CHAPS

Antibiotics
- Carbenicillin
- Gentamicin
- Ampicillin
- Vancomycin

Amino Acids
- Glycine
- L-Asparagine
- L-Arginine
- L-Threonine

General Chemicals
- NaCl
- Sodium phosphate
- Potassium phosphate
- Glycerol
- Propylene glycol
- HCl/NaOH/EtOH

Biochemicals
- DTT
- Agarose
- Guanidine HCL
- Sucrose
- Heparin
- Pristane

Buffer Portfolio

Buffer Name	Synonym	CAS	M.W.	Ready-to-Use Solutions	Redi Dri™ Free-Flowing Technology	General-Use Reagent Grade	Mulit-Application Life Science Grade	PharmaGrade with Stringent Controls	Emprove Program with Documentation	OmniPur® & ULTROL® Application-Focused Products	d(pKa)/oC	pKa	pH low	ph high	Mg(II)	Ca(II)	Cr(III)	Mn(II)	Fe(III)	Co(II)	NI(II)	Cu(II)	Zn(II)	Cd(II)	Pb(II)	Metal Ion
MES	2-(N-Morpholino)ethanesulfonic free acid	4432-31-9	195.24	M1317		M3671				475893	-0.009	6.27	5.5	6.7	◦	◦		◦	▪	◦	◦	◦	◦			Weak Cu2+, Mg2+, Mn2+, Ni2+, Strong Fe3+ binding
MES hydrate	2-(N-Morpholino)ethanesulfonic acid hydrate	1266615-59-1	195.24		RDD030	M8250	M2933, M5287, 69890				-0.009	6.27	5.5	6.7	◦	◦		◦	▪	◦	◦	◦	◦			Weak Cu2+, Mg2+, Mn2+, Ni2+, Strong Fe3+ binding
MES monohydrate	2-(N-Morpholino)ethanesulfonic acid monohydrate	145224-94-8	213.25				69892, 69889			6110-OP	-0.009	6.27	5.5	6.7	◦	◦		◦	▪	◦	◦	◦	◦			Weak Cu2+, Mg2+, Mn2+, Ni2+, Strong Fe3+ binding
MES sodium salt	2-(N-Morpholino)ethanesulfonic acid sodium salt	71119-23-8	217.22			M3885	M3058, M5057		Yes	475894	-0.009	6.27	5.5	6.7	◦	◦		◦	▪	◦	◦	◦	◦			Weak Cu2+, Mg2+, Mn2+, Ni2+, Strong Fe3+ binding
BIS-TRIS	2-Bis(2-hydroxyethyl)amino-2-(hydroxymethyl)-1,3-propanediol	6976-37-0	209.24		RDD013	B9754	B4429, B7535, 14879			2650-OP, 391335	-0.017	6.48	5.8	7.2	◦	◦		◦		◦	◦	▪	◦	◦	▪	Weak Mg, Ca, Mn, Co, Ni, Zn, Cd, Strong Cu, Pb
BIS-TRIS hydrochloride	2-Bis(2-hydroxyethyl)amino-2-(hydroxymethyl)-1,3-propanediol hydrochloride	124763-51-5	245.7			B6032					-0.017	6.48	5.8	7.2	◦	◦		◦		◦	◦	▪	◦	◦	▪	Weak Mg, Ca, Mn, Co, Ni, Zn, Cd, Strong Cu, Pb
Glycine	aminoacetic acid	56-40-6	75.07	G5418		G7126, 410225	G8898, G7403, 50046	G8790, 50058	Yes	4810-OP, 357002	#N/A	2.35	5.9	6.4	◦			◦				▪				
PIPES	1,4-Piperazinediethanesulfonic acid	5625-37-6	302.37		RDD004	P6757	P1851, P8203, 80635			528131	-0.007	7.141	6.1	7.5						◦	◦	◦	◦		◦	Some divalent cations, Co, Ni
PIPES sodium salt	1,4-Piperazinediethanesulfonic acid sodium salt	10010-67-0	324.35			P2949				6910-OP	-0.007	7.141	6.1	7.5						◦	◦	◦	◦		◦	Some divalent cations, Co, Ni
PIPES disodium salt	1,4-Piperazinediethanesulfonic acid disodium salt	76836-02-7	346.33			P3768					-0.007	7.141	6.1	7.5						◦	◦	◦	◦		◦	Some divalent cations, Co, Ni
ACES	2-[(2-Amino-2-oxoethyl)amino]ethanesulfonic acid	7365-82-4	182.2		RDD010	A9758	A7949, A3594, 00194				-0.019	6.84	6.1	7.5	▪	◦		◦		◦	◦	▪	◦			Cu2+, Mg2+, Weak:CA, Mn, Co, Ni, Zn
MOPSO	β-Hydroxy-4-morpholinepropanesulfonic acid	68399-77-9	225.26			M8389					-0.016	6.87	6.2	7.5					▪		◦	◦			◦	Strong Fe, Weak Ni
MOPSO sodium salt	β-Hydroxy-4-morpholinepropanesulfonic acid sodium salt	79803-73-9	247.24			M8767	M5914				-0.016	6.87	6.2	7.5					▪		◦	◦			◦	Strong Fe, Weak Ni
BIS-TRIS propane	1,3-Bis[tris(hydroxymethyl)methylamino]propane	64431-96-5	282.363		RDD014	B6755	B9410, B4679			394111	#N/A	6.8, 9.0	6.3	9.5						▪	▪	▪	▪	▪	▪	Strong Ni, Co, Cu, Zn, Cd, Pb
Imidazole	1,3-diaza-2,4-cyclopentadiene	288-32-4	68.08	68268	792527, RDD044, RDD039	I202, I0250, 56750, 12399	I5513, 56749, 56748		Yes	IX0005	#N/A	6.95	6.2	7.8						▪	▪	▪	▪	▪		Divalent cations
Imidazole hydrochloride	1,3-diaza-2,4-cyclopentadiene hydrochloride	1467-16-9	104.54			I3386					#N/A	6.95	6.2	7.8						▪	▪	▪	▪	▪		Divalent cations
BES	N,N-Bis(2-hydroxyethyl)-2-aminoethanesulfonic acid	10191-18-1	213.25			B9879	B6420, B4554, 14853			391334	-0.015	7.187	6.4	7.8						◦		◦				Weak Co, Cu
BES sodium salt	N,N-Bis(2-hydroxyethyl)-2-aminoethanesulfonic acid sodium salt	66992-27-6	235.23			B2891																				
MOPS	3-(N-Morpholino)propanesulfonic acid	1132-61-2	209.26		RDD003	M1254	M5162, M3183, 69947			6310-OP, 475898	-0.013	7.184	6.5	7.9	◦			◦	▪	◦	◦	◦	◦			Strong Fe, Weak: Mg, Mn, Co, Ni
MOPS sodium salt	3-(N-Morpholino)propanesulfonic acid sodium salt	71119-22-7	231.25		RDD018	M9381	M9024, M5789			475899	-0.013	7.184	6.5	7.9	◦			◦	▪	◦	◦	◦	◦			Strong Fe, Weak: Mg, Mn, Co, Ni
MOPS hemisodium salt	3-(N-Morpholino)propanesulfonic acid hemisodium salt	117961-20-3	220.25			M9027, M0289					-0.013	7.184	6.5	7.9	◦			◦	▪	◦	◦	◦	◦			Strong Fe, Weak: Mg, Mn, Co, Ni
TES	2-[(2-Hydroxy-1,1-bis(hydroxymethyl)ethyl)amino] ethanesulfonic acid	7365-44-8	229.25			T1375	T5691, 93359, T6541			505147	-0.02	7.55	6.8	8.2			▪		▪	◦	◦	◦	◦			Strong: Cr, Fe, Weak: Co, Ni, Cu, Zn
TES sodium salt	2-[(2-Hydroxy-1,1-bis(hydroxymethyl)ethyl)amino] ethanesulfonic acid sodium salt	70331-82-7	251.23			T0772					-0.02	7.55	6.8	8.2			▪		▪	◦	◦	◦	◦			Strong: Cr, Fe, Weak: Co, Ni, Cu, Zn
TES hemisodium salt	2-[(2-Hydroxy-1,1-bis(hydroxymethyl)ethyl)amino] ethanesulfonic acid hemisodium salt	1204213-54-6	240.24			T1030					-0.02	7.55	6.8	8.2			▪		▪	◦	◦	◦	◦			Strong: Cr, Fe, Weak: Co, Ni, Cu, Zn
HEPES	4-(2-Hydroxyethyl)piperazine-1-ethanesulfonic acid	7365-45-9	238.3	H3537, 83264	RDD002	H3375, H23830 - **NEW!**	H4034, H6147, H7523, 54457		Yes	5310-OP, 391338	-0.012	7.5	6.8	8.2								◦	◦	◦	◦	Oxidized by Cu2+
HEPES sodium salt	4-(2-Hydroxyethyl)piperazine-1-ethanesulfonic acid sodium salt	75277-39-3	260.29	H3662	RDD035	H7006	H3784, H8651		Yes	5380-OP, 391333	-0.012	7.5	6.8	8.2								◦	◦	◦	◦	Oxidized by Cu2+

Buffer Name	Synonym	CAS	M.W.	Ready-to-Use Solutions	Redi Dri™ Free-Flowing Technology	General-Use Reagent Grade	Mulit-Application Life Science Grade	PharmaGrade with Stringent Controls	Emprove Program with Documentation	OmniPur® & ULTROL® Application-Focused Products	d(pKa)/oC	pKa	pH low	ph high	Mg(II)	Ca(II)	Cr(III)	Mn(II)	Fe(III)	Co(II)	NI(II)	Cu(II)	Zn(II)	Cd(II)	Pb(II)	Metal Ion
HEPES hemisodium salt	4-(2-Hydroxyethyl)piperazine-1-ethanesulfonic acid hemisodium salt	103404-87-1	249.3			H7637, H9897					-0.012	7.5	6.8	8.2								▫	▫	▫	▫	Oxidized by Cu2+
HEPES potassium salt	4-(2-Hydroxyethyl)piperazine-1-ethanesulfonic acid potassium salt	82207-62-3	276.39			H0527					-0.012	7.5	6.8	8.2								▫	▫	▫	▫	Oxidized by Cu2+
TAPSO	3-[[1,3-dihydroxy-2-(hydroxymethyl)propan-2-yl] amino]-2-hydroxypropane-1-sulfonic acid	68399-81-5	259.28			T9269						7.6	7	8.2	▪	▪		▫	▪	▫	▫	▪	▫	▫	▪	
Trizma® base	2-Amino-2-(hydroxymethyl)-1,3-propanediol	77-86-1	121.14	T1699, T1449	RDD008	T1503, T4661, 93352, 93350	T6791, 93362	T6066		9210-OP, 648311	-0.029	8.1	7	9	▫	▫	▪		▪	▪	▪	▪	▫	▫	▫	Strong: Cr, Fe, Co, Ni, Cu, Weak: Mg, Ca, Zn, Cd, Pb
Tromethamine	2-Amino-2-(hydroxymethyl)-1,3-propanediol	77-86-1	121.14					T6687	Yes	108382	-0.029	8.1	7	9	▫	▫	▪		▪	▪	▪	▪	▫	▫	▫	Strong: Cr, Fe, Co, Ni, Cu, Weak: Mg, Ca, Zn, Cd, Pb
Sigma 7-9®	2-Amino-2-(hydroxymethyl)-1,3-propanediol	77-86-1	121.14			T1378					-0.029	8.1	7	9	▫	▫	▪		▪	▪	▪	▪	▫	▫	▫	Strong: Cr, Fe, Co, Ni, Cu, Weak: Mg, Ca, Zn, Cd, Pb
Trizma® hydrochloride	Tris(hydroxymethyl)aminomethane hydrochloride	1185-53-1	157.6	T6666, T2694, T3038, T3069, T2319, T2663, T2819, T2194, T1819, T2944	RDD009	T3253, T15760 - **NEW!**	T5941, 93363		Yes	9310-OP, 648313	-0.029	8.1	7	9	▫	▫	▪		▪	▪	▪	▪	▫	▫	▫	Strong: Cr, Fe, Co, Ni, Cu, Weak: Mg, Ca, Zn, Cd, Pb
Triethanolamine	tris(2-hydroxyethyl)amine	102-71-6	149.19			90279	90278		Yes		#N/A	7.8	7.3	8.3	▫	▫				▫	▫	▪	▫	▫	▫	
Triethanolamine hydrochloride	tris(2-hydroxyethyl)amine hydrochloride	637-39-8	185.65			T1502	T9534				#N/A	7.8	7.3	8.3	▫	▫				▫	▫	▪	▫	▫	▫	
Tricine	N-(2-Hydroxy-1,1-bis(hydroxymethyl)ethyl)glycine	5704-04-1	179.17	T9784	RDD024	T0377, T17917 - **NEW!**	T5816			9010-OP	-0.019	8.1	7.4	8.8	▪	▪				▪	▪	▪	▪			Strong: Mg, Ca, Co, Cu, Ni, Zn
EPPS (HEPPS)	4-(2-Hydroxyethyl)-1-piperazinepropanesulfonic acid	16052-06-5	252.33			E9502	E1894, E0276				-0.013	7.957	7.3	8.7								▫			▫	Weak:Ni, Pb
Gly-Gly	Glycyl-glycine	556-50-3	132.12			G1002	50199, 50200, G3915				-0.026	8.27	7.5	8.9				▫				▪	▫			Weak: Zn, Hg
BICINE	N,N-Bis(2-hydroxyethyl)glycine	150-25-4	163.17		RDD036	B3876	B8660				-0.016	8.334	7.6	9	▪	▪		▫	▪	▪	▪	▪	▪	▪		Strong: Mg, Ca, Fe, Co, Ni, Cu, Zn, Weak: Mn
TAPS	3-{[1,3-Dihydroxy-2-(hydroxymethyl)-2-propanyl] amino}-1-propanesulfonic acid	29915-38-6	243.28			T5130	T9659, T5316			394675	-0.024	8.44	7.7	9.1			▪		▪			▪	▫	▫	▫	Strong: Cr, Fe, Cu, Weak:Zn, Cd, Pb
TAPS sodium salt	3-{[1,3-Dihydroxy-2-(hydroxymethyl)-2-propanyl] amino}-1-propanesulfonic acid sodium salt	91000-53-2	265.26			T0647	T5441				-0.024	8.44	7.7	9.1			▪		▪			▪	▫	▫	▫	Strong: Cr, Fe, Cu, Weak: Zn, Cd, Pb
CHES	2-(Cyclohexylamino)ethanesulfonic acid	103-47-9	207.29			C2885	C8210, 29311			3100-OP, 239779	-0.023	9.394	8.6	10	▪	▪		▪		▪					▪	Strong: Mg, Ca, Mn, Co, Pb
CAPSO	3-(Cyclohexylamino)-2-hydroxy-1-propanesulfonic acid	73463-39-5	237.32			C2278					-0.028	9.825	8.9	10.3												
CAPSO sodium salt	3-(Cyclohexylamino)-2-hydroxy-1-propanesulfonic acid sodium salt	102601-34-3	259.3			C2154					-0.028	9.825	8.9	10.3												
Amp	2-Amino-2-methyl-1-propanol	124-68-5	89.14			A65182, 08581	A9199, 08578				-0.032	9.69	9	10.5							▫	▫	▫	▫	▫	Weak: Ni, Cu, Zn, Cd, Pb
Amp hydrochloride	2-Amino-2-methyl-1-propanol hydrochloride	3207-12-3	125.6								-0.032	9.69	9	10.5							▫	▫	▫	▫	▫	Weak: Ni, Cu, Zn, Cd, Pb
CAPS	3-(Cyclohexylamino)-1-propanesulfonic acid	1135-40-6	221.32		RDD015	C2632	C6070, 29337			239782	-0.029	10.499	9.7	11.1												

Selection Guide

Buffer Name	CAS #	d(pKa)/°C	pKa at Temperature				Grade & Product Number				Useful pH Range
			5 °C	20 °C	25 °C	37 °C	Reagent Grade	BioPerformance Certified	BioXtra	BioUltra	5 6 7 8 9 10 11
MES hydrate**	1266615-59-1	-0.009	6.45	6.31	6.27	6.16	M8250	M2933	M5287	69890	5.5 - 6.7
MES monohydrate**	145224-94-8	-0.009	6.45	6.31	6.27	6.16	-	-	69892	69889	5.5 - 6.7
BIS-TRIS*	6976-37-0	-0.017	6.83	6.56	6.48	6.29	B9754	B4429	B7535	14879	5.8 - 7.2
ADA	26239-55-4	-0.008	7.01	6.88	6.84	6.76	A9883	-	-	00307	6.0 - 7.2
PIPES**	5625-37-6	-0.007	7.28	7.17	7.14	7.05	P6757	P1851	P8203	-	6.1 - 7.5
ACES	7365-82-4	-0.019	7.23	6.93	6.84	6.64	A9758	A3594	A7949	00194	6.1 - 7.5
MOPSO**	68399-77-9	-0.016	7.23	6.95	6.87	6.69	M8389	-	-	-	6.2 - 7.6
BIS-TRIS propane	64431-96-5				6.75 pK_{a1} 9.10 pK_{a2}		B6755	B4679	B9410	-	6.3 - 9.5
BES	10191-18-1	-0.015	7.49	7.26	7.19	7.01	B9879	B4554	B6420	-	6.4 - 7.8
MOPS**	1132-61-2	-0.013	7.44	7.25	7.18	7.04	M1254	M3183	M5162	69947	6.5 - 7.9
TES	7365-44-8	-0.020	7.96	7.65	7.55	7.34	T1375	T5691	T6541	93359	6.8 - 8.2
HEPES**	7365-45-9	-0.012	7.82	7.62	7.56	7.43	H3375	H4034	H7273	54457	6.8 - 8.2
DIPSO	68399-80-4	-0.018	7.95	7.66	7.58	7.37	-	-	D0306	-	7.0 - 8.2
Trizma® (Tris base)*	77-86-1	-0.029	8.68	8.21	8.07	7.75	T1503	T6066	T6791	93362	7.0 - 9.0
Tricine	5704-04-1	-0.019	8.54	8.23	8.14	7.91	T0377	T5816	T9784	93356	7.4 - 8.8
Gly-Gly	556-50-3	-0.026	8.81	8.39	8.27	7.94	G1002	G3915	50200	50199	7.5 - 8.9
EPPS (HEPPS)	16052-06-5	-0.013	8.22	8.02	7.96	7.81	E9502	E0276	E1894	54465	7.6 - 8.6
BICINE	150-25-4	-0.016	8.66	8.41	8.33	8.16	B3876	-	B8660	14871	7.6 - 9.0
TAPS	29915-38-6	-0.024	8.91	8.55	8.44	8.14	T5130	T5316	T9659	-	7.7 - 9.1
Ampd	115-69-5	-0.029	9.43	8.96	8.80	8.46	A9754	-	-	-	7.8 - 9.7
AMPSO	68399-79-1	-0.027	9.69	9.27	9.14	8.85	A6659	-	-	-	8.3 - 9.7
CHES	103-47-9	-0.023	9.89	9.51	9.39	9.12	C2885	-	C8210	29311	8.6 - 10
CAPSO**	73463-39-5	-0.028	10.41	9.96	9.83	9.51	C2278	-	-	-	8.9 - 10.3
Amp	124-68-5	-0.032	10.34	9.85	9.69	9.32	A65182	-	A9199	08578	9.0 - 10.5
CAPS	1135-40-6	-0.029	11.09	10.64	10.50	10.17	C2632	-	C6070	29337	9.7 - 11.1

Biological Buffers

It’s important to protect the integrity of your biomolecules and reagents by choosing the right biological buffer systems. We offer an extensive portfolio of biological buffers for a wide variety of applications, including cell culture buffers, PCR buffers, HEPES buffers, and assay buffers.

Key features of our advanced buffer systems:

- High-purity solutions available in a wide range of grades
- Multiple and user-friendly packaging options
- Assured solution stability with pH control
- No interference with biological processes
- Add critical salts and nutrients to cells and tissues
- Scalable from early research to commercial applications
- Customized blending

Our advanced buffering systems can bring phenomenal stability to your **cell culture**, **polymerase chain reaction (PCR)**, **drug screening**, **bioprocessing**, **purification**, and final formulation-based applications. All our products can be scaled from early research to commercial applications.

GB11
“Good” buffers

08578
2-Amino-2-methyl-1-propanol
BioUltra, ≥99.0% (GC)

A9199
2-Amino-2-methyl-1-propanol
BioXtra, ≥95%

08569
2-Amino-2-methyl-1,3-propanediol
BioUltra, ≥99.5% (NT)

A9754
2-Amino-2-methyl-1,3-propanediol
≥99%

RDD010
ACES
anhydrous, free-flowing, Redi-Dri™, ≥99.0%

A9758
ACES
≥99.0% (titration)

00194
ACES
BioUltra, ≥99.5% (T)

A3594
ACES
BioPerformance Certified, ≥99.0%, suitable for cell culture

A7949
ACES
BioXtra, ≥99.0% (titration)

A9883
ADA
≥98% (titration)

00307
ADA
BioUltra, ≥99.0% (T)

A9226
Alkaline buffer solution
1.5 M, pH 10.3 (25 °C)

A3551
Alsever's Solution
liquid, sterile-filtered, suitable for cell culture

09689
Ammonium acetate

BioUltra, for molecular biology, ≥99.0%

A1542
Ammonium acetate
for molecular biology, ≥98%

A7330
Ammonium acetate
BioXtra, ≥98%

A7262
Ammonium acetate
reagent grade, ≥98%

A2706
Ammonium acetate solution
for molecular biology, 7.5 M

09691
Ammonium acetate solution
BioUltra, for molecular biology, ~5 M in H_2O

613983
Ammonium acetate-d_3
98 atom % D, 99% (CP)

440485
Ammonium acetate-d_7
98 atom % D

09830
Ammonium bicarbonate
BioUltra, ≥99.5% (T)

09833
Ammonium citrate dibasic
BioXtra, ≥99.0% (T)

A1332
Ammonium citrate tribasic
≥97% (titration)

09985
Ammonium tartrate dibasic
BioUltra, ≥98% (T)

608882

Ammonium-^{15}N acetate
40-70 atom % ^{15}N

607460
Ammonium-^{15}N acetate-$^{13}C_2$
99 atom % ^{13}C, 98 atom % ^{15}N

491780
Ammonium-^{15}N dihydrogen phosphate
98 atom % ^{15}N

608599
Ammonium-$^{15}N_2$ carbonate-^{13}C
98 atom % ^{15}N, 99 atom % ^{13}C

613991
Ammonium-d_4 acetate
98 atom % D

A6659
AMPSO
≥99% (titration)

A1911
AMPSO sodium salt

21685
ATX Tris buffer
ready-to-use solution

B9879
BES
≥99.0% (titration)

V900291
BES
Vetec™, reagent grade, ≥99%

B2891
BES sodium salt
≥99% (titration)

B8660
BICINE
BioXtra, ≥99% (titration)

B3876
BICINE
≥99% (titration)

RDD013
BIS-TRIS
anhydrous, free-flowing, Redi-Dri™, ≥98.0%

14879
BIS-TRIS
BioUltra, ≥99.0% (NT)

B7535
BIS-TRIS
BioXtra, ≥98.0% (titration)

B9754
BIS-TRIS
≥98.0% (titration)

B4429
BIS-TRIS
BioPerformance Certified, suitable for cell culture, suitable for insect cell culture, ≥98.0%

B6032
BIS-TRIS hydrochloride
≥99.0% (titration)

B9410
BIS-TRIS propane
BioXtra, ≥99.0% (titration)

B4679
BIS-TRIS propane
BioPerformance Certified, suitable for cell culture, ≥99.0%

B6755
BIS-TRIS propane
≥99.0% (titration)

RDD014
BIS-TRIS propane
anhydrous, free-flowing, Redi-Dri™, ≥99.0%

15663
Boric acid
BioUltra, for molecular biology, ≥99.5% (T)

B2645
Boric acid
tablet, 1 g boric acid per tablet

B7901
Boric acid
suitable for electrophoresis, ≥99.5%

B6768
Boric acid
BioReagent, for molecular biology, suitable for cell culture, suitable for plant cell culture, ≥99.5%

B7660
Boric acid
BioXtra, ≥99.5%

B4770
Buffer, reference standard
pH 7.00±0.01 (25 °C)

C0125
Cacodylic acid
≥98%

21056
Calcium acetate hydrate
BioUltra, ≥99.0% (calc. on dried material, KT)

C1000
Calcium acetate hydrate
ReagentPlus®, ≥99% (titration), powder

C7263
Calcium phosphate dibasic
98.0-105.0%

C2632
CAPS
≥99%

C6070
CAPS
BioXtra, ≥99%

RDD015
CAPS
anhydrous, free-flowing, Redi-Dri™, ≥99%

V900307
CAPS
Vetec™, reagent grade, ≥98%

C2278
CAPSO
≥99% anhydrous basis (titration)

C2154
CAPSO sodium salt

C9426
CHAPS hydrate
BioReagent, suitable for electrophoresis, ≥98% (HPLC)

29311
CHES
BioUltra, ≥99.5% (T)

V900295
CHES
Vetec™, reagent grade, 99%

C2885
CHES
≥99.0% (titration)

C8210
CHES
BioXtra, ≥99.0% (titration)

S5770
Citrate Concentrated Solution
BioReagent, suitable for coagulation assays, 4 % (w/v)

83273
Citrate Concentrated Solution
BioUltra, for molecular biology, 1 M in H_2O

C3821
Citrate-dextrose solution (ACD)
sterile-filtered

C7165
Citrate-phosphate-dextrose solution
aseptically filled

C4431
Citrate-phosphate-dextrose solution with adenine

27487
Citric acid
BioUltra, anhydrous, ≥99.5% (T)

C2404
Citric acid
anhydrous, suitable for cell culture, suitable for plant cell culture

C0706
Citric acid monohydrate
BioXtra, ≥99.5%

C3674
Citric acid trisodium salt
anhydrous, ≥98% (GC)

39220
Dansyl chloride
BioReagent, suitable for fluorescence, ≥99.0% (HPLC)

C8606
Dibasic Calcium Phosphate
meets USP testing specifications

31589
Diethanolamine
BioUltra, ≥99.5% (GC)

D0306
DIPSO
BioXtra, pH 4.0-5.5 (20 °C, 0.1 M in H_2O), ≥98% (titration)

D1283
Dulbecco′s Phosphate Buffered Saline
With calcium chloride and magnesium chloride, 10×, liquid, sterile-filtered, suitable for cell culture

D8537
Dulbecco′s Phosphate Buffered Saline
Modified, without calcium chloride and magnesium chloride, liquid, sterile-filtered, suitable for cell culture

D5773
Dulbecco′s Phosphate Buffered Saline
Without calcium chloride, powder, suitable for cell culture

D8662
Dulbecco′s Phosphate Buffered Saline
With $MgCl_2$ and $CaCl_2$, liquid, sterile-filtered, suitable for cell culture

D5652
Dulbecco′s Phosphate Buffered Saline
Modified, without calcium chloride and magnesium chloride, powder, suitable for cell culture

D4031
Dulbecco′s Phosphate Buffered Saline
Modified, with 36 mg sodium pyruvate, 50 mg streptomycin sulfate, 100 mg kanamycin monosulfate, 1000 mg glucose/L and $CaCl_2$, liquid, 0.1 µm filtered, suitable for cell culture

E7510
Earle′s Balanced Salt Solution 10x
Without sodium bicarbonate, 10 ×, liquid, sterile-filtered, suitable for cell culture

E2888
Earle′s Balanced Salts
With sodium bicarbonate, liquid, sterile-filtered, suitable for cell culture

E6267
Earle′s Balanced Salts
With sodium bicarbonate, without calcium chloride and magnesium sulfate, liquid, sterile-filtered, suitable for cell culture

E3024
Earle′s Balanced Salts
With sodium bicarbonate, without phenol red, liquid, sterile-filtered, suitable for cell culture

E9502
EPPS
≥99.5% (titration)

E0276
EPPS
BioPerformance Certified, suitable for cell culture, ≥99.5% (titration)

E1894
EPPS
BioXtra, ≥99.5% (titration)

ED
Ethylenediaminetetraacetic acid
purified grade, ≥98.5%, powder

EDS
Ethylenediaminetetraacetic acid
BioUltra, anhydrous, ≥99% (titration)

E5134
Ethylenediaminetetraacetic acid disodium salt dihydrate
suitable for electrophoresis, for molecular biology, 99.0-101.0% (titration)

E4884
Ethylenediaminetetraacetic acid disodium salt dihydrate
ACS reagent, 99.0-101.0%

E5134
Ethylenediaminetetraacetic acid disodium salt dihydrate
suitable for electrophoresis, for molecular biology, 99.0-101.0% (titration)

03677
Ethylenediaminetetraacetic acid disodium salt dihydrate
BioUltra, for molecular biology, ≥99.0% (T)

ED4SS
Ethylenediaminetetraacetic acid tetrasodium salt dihydrate
99.0-102.0% (titration)

G9779
Gey's Balanced Salt Solution
liquid, sterile-filtered, suitable for cell culture

50200
Gly-Gly
BioXtra, ≥99.0% (NT)

50199
Gly-Gly
BioUltra, ≥99.5% (NT)

G8284
Glycolic acid
BioXtra, ≥98.0% (titration)

H9269
Hanks' Balanced Salt solution
With sodium bicarbonate, liquid, sterile-filtered, suitable for cell culture

H6648
Hanks' Balanced Salt solution
Modified, with sodium bicarbonate, without phenol red, calcium chloride and magnesium sulfate, liquid, sterile-filtered, suitable for cell culture

H9394
Hanks′ Balanced Salt solution
Modified, with sodium bicarbonate, without calcium chloride and magnesium sulfate, liquid, sterile-filtered, suitable for cell culture

H8264
Hanks′ Balanced Salt solution
Modified, with sodium bicarbonate, without phenol red, liquid, sterile-filtered, suitable for cell culture

H4641
Hanks′ Balanced Salt Solution 10x
Without calcium chloride, magnesium sulfate and sodium bicarbonate, 10 ×, liquid, sterile-filtered, suitable for cell culture

H1641
Hanks′ Balanced Salt Solution 10x
Without sodium bicarbonate, 10 ×, liquid, sterile-filtered, suitable for cell culture

H1387
Hanks′ Balanced Salts
Modified, without phenol red and sodium bicarbonate, powder, suitable for cell culture

H6903
HEPBS
≥99% (titration)

54457
HEPES
BioUltra, for molecular biology, ≥99.5% (T)

H7523
HEPES
BioXtra, pH 5.0-6.5 (1 M in H_2O), ≥99.5% (titration)

H4034
HEPES
BioPerformance Certified, ≥99.5% (titration), suitable for cell culture

H3375
HEPES
≥99.5% (titration)

H6147
HEPES
BioXtra, suitable for mouse embryo cell culture, ≥99.5% (titration)
RDD002
HEPES
anhydrous, free-flowing, Redi-Dri™, ≥99.5%

V900477
HEPES
Vetec™, reagent grade, 99.5%

83264
HEPES buffer solution
1 M in H_2O

H9897
HEPES hemisodium salt
dry powder

V900294
HEPES hemisodium salt
Vetec™, reagent grade, 99%

H0527
HEPES potassium salt
≥99.5% (titration)

H3784
HEPES sodium salt
BioPerformance Certified, suitable for cell culture, ≥99.0%

H7006
HEPES sodium salt
≥99.0% (titration)

V900479
HEPES sodium salt
Vetec™, reagent grade, 96%

H3662
HEPES sodium salt solution
1M, BioReagent, suitable for cell culture

H3537
HEPES solution
BioPerformance Certified, 1 M, suitable for cell culture, 0.2 µm filtered

H0887
HEPES solution
1 M, pH 7.0-7.6, sterile-filtered, BioReagent, suitable for cell culture

SRE0065

HEPES solution, 1M

643823
HEPES-d_{18}
98 atom % D, 98% (CP)

I0250
Imidazole
≥99% (titration), crystalline

56748
Imidazole
BioUltra, for molecular biology, ≥99.5% (GC)

56749
Imidazole
BioUltra, ≥99.5% (GC)

I5513
Imidazole
for molecular biology, ≥99% (titration)

I202
Imidazole
ReagentPlus®, 99%

68268
Imidazole buffer Solution
BioUltra, 1 M in H_2O

I3386
Imidazole hydrochloride

I7633
Iscove′s Modified Dulbecco′s Medium
With L-glutamine and 25 mM HEPES, without sodium bicarbonate, powder, suitable for cell culture

K3753
Krebs-Henseleit Buffer Modified
With 2000 mg/L glucose, without calcium chloride and sodium bicarbonate, powder, suitable for cell culture

K4002
Krebs-Ringer Bicarbonate Buffer
With 1800 mg/L glucose, without calcium chloride and sodium bicarbonate, powder, suitable for cell culture

L4386
L-15 Medium (Leibovitz)

With L-glutamine, powder, suitable for cell culture

M2545
Magnesium acetate tetrahydrate
BioXtra, ≥99%

M5661
Magnesium acetate tetrahydrate
for molecular biology, ≥99%

00793
Magnesium formate dihydrate
BioXtra, ≥98.0% (RT)

M3769
Medium 199
Modified, with Earle′s salts, without L-glutamine, sodium bicarbonate, and phenol red, powder, suitable for cell culture

M3671
MES
low moisture content, ≥99% (titration)

M0164
MES hemisodium salt
dry powder

M8902
MES hemisodium salt
≥98% (titration)

M8250
MES hydrate
≥99.5% (titration)

69890
MES hydrate
BioUltra, ≥99.5% (T)

M2933
MES hydrate
BioPerformance Certified, suitable for cell culture, ≥99.5%

M5287
MES hydrate
≥99.5% (titration), pH 2.5-4.0 (0.5 M in H_2O), BioXtra

V900381
MES hydrate
Vetec™, reagent grade, ≥99%

V900336
MES monohydrate
Vetec™, reagent grade, 99%

69889
MES monohydrate
BioUltra, for molecular biology, ≥99.5% (T)

69892
MES monohydrate
BioXtra, ≥99.0% (T)

M0895
MES potassium salt
≥99% (titration)

V900461
MES sodium salt
Vetec™, reagent grade, 99%

M5057
MES sodium salt
BioReagent, ≥99% (titration), crystalline

M3885
MES sodium salt
≥99% (titration)

M3058
MES sodium salt
BioPerformance Certified, suitable for cell culture

76039
MES solution
BioUltra, for molecular biology, 0.5 M in H_2O

M1317
MES solution
suitable for, BioPerformance Certified, 1 M, suitable for cell culture

687022
MES-d_{13}
98 atom % D, 98% (CP)

M0894
Minimum Essential Medium Eagle
Alpha Modification, with L-glutamine and sodium pyruvate, without ribonucleosides, deoxyribonucleosides and sodium bicarbonate, powder, suitable for cell culture

M3295
MOBS
≥99% (titration)

F-04
Modified Barth's Saline (1X), liquid, without Ficoll® 400
This solution is used in the culture of Xenopus Oocytes.

69947
MOPS
BioUltra, for molecular biology, ≥99.5% (titration)

M5162
MOPS
BioXtra, ≥99.5% (titration)

M1254
MOPS
≥99.5% (titration)

M3183
MOPS
BioPerformance Certified, suitable for cell culture, ≥99.5% (titration)

V900306
MOPS
Vetec™, reagent grade

RDD003
MOPS
anhydrous, free-flowing, Redi-Dri™, ≥99.5%

M9027
MOPS hemisodium salt
≥99% (titration)

V900309
MOPS hemisodium salt
Vetec™, reagent grade, 98%

V900460
MOPS sodium salt
Vetec™, reagent grade, 99.5%

M9024
MOPS sodium salt
BioPerformance Certified, suitable for cell culture, ≥99.5%

M9381
MOPS sodium salt
≥99.5% (titration)

RDD018
MOPS sodium salt
anhydrous, free-flowing, Redi-Dri™, ≥99.5%

M1442
MOPS solution
BioPerformance Certified, 1 M, suitable for cell culture

M8389
MOPSO
≥99% (titration)

V900446
MOPSO
Vetec™, reagent grade, 99%

M8767
MOPSO sodium salt
≥99% (titration)

M5914
MOPSO sodium salt
BioXtra, pH 10-12 (1 M in H_2O), ≥99% (titration)

V900484
MOPSO sodium salt
Vetec™, reagent grade, 98%

N6760
Nutrient Mixture F-12 Ham
With L-glutamine, without sodium bicarbonate, powder, suitable for cell culture

N3520
Nutrient Mixture F-12 Ham
Kaighn′s Modification, with L-glutamine, without sodium bicarbonate, powder, suitable for cell culture

P0290
Phenol red solution
0.5%, liquid, sterile-filtered, BioReagent, suitable for cell culture

P7994
Phosphate Buffer Powder

P3619
Phosphate Buffer Solution
1.0 M, pH 7.4 (25 °C)

P5244
Phosphate buffer solution
0.1 M

P5119
Phosphate buffered saline
pH 7.2 (25 °C)

P5493
Phosphate buffered saline
10× concentrate, BioPerformance Certified, suitable for cell culture

80621
Piperazine
BioUltra, anhydrous, ≥99.0% (T)

80635
PIPES
BioXtra, for molecular biology, ≥99.5% (T)

P8203
PIPES
BioXtra, ≥99% (titration)

P6757
PIPES
≥99% (titration)

P1851
PIPES
BioPerformance Certified, suitable for cell culture

V900404
PIPES
Vetec™, reagent grade, ≥99%

RDD004
PIPES
anhydrous, free-flowing, Redi-Dri™, ≥99%

P7643
PIPES dipotassium salt
≥99% (titration)

P3768
PIPES disodium salt
≥99% (titration)

P2949
PIPES sodium salt
≥99% (titration)

696633
PIPES-d_{18}
≥98 atom % D, ≥98% (CP)

P3405
POPSO hydrate
≥99% (titration)

P5708
Potassium acetate
BioXtra, ≥99.0%

P1222
Potassium acetate
meets USP testing specifications

P1190
Potassium acetate
for molecular biology, ≥99.0%

60035
Potassium acetate
BioUltra, for molecular biology, ≥99.0% (NT)

95843
Potassium acetate solution
BioUltra, for molecular biology, 5 M in H_2O

60339
Potassium bicarbonate

BioUltra, ≥99.5% (T)

606235
Potassium bicarbonate-^{13}C
98 atom % ^{13}C

P1472
Potassium carbonate
meets USP testing specifications

25107
Potassium citrate tribasic monohydrate
meets analytical specification of Ph. Eur., BP, FCC, E332, 99-100.5% (calc with ref. to anhyd. subst.)

C8385
Potassium citrate tribasic monohydrate
≥98% (GC/titration)

C3029
Potassium citrate tribasic monohydrate
suitable for cell culture

329916
Potassium dideuterium phosphate
98 atom % D

P1088
Potassium hydrogen phthalate
BioXtra, ≥99.95%

P2222
Potassium phosphate dibasic
meets USP testing specifications

P8281
Potassium phosphate dibasic
reagent grade, ≥98.0%

60353
Potassium phosphate dibasic
anhydrous, for luminescence, for molecular biology, BioUltra, ≥99.0% (T)

P8584
Potassium phosphate dibasic solution
1.0 M

P9666
Potassium phosphate dibasic trihydrate

for molecular biology, ≥99%

P5504
Potassium phosphate dibasic trihydrate
ReagentPlus®, ≥99.0%

60218
Potassium phosphate monobasic
BioUltra, for molecular biology, anhydrous, ≥99.5% (T)

P9791
Potassium phosphate monobasic
for molecular biology, ≥98.0%

P5655
Potassium phosphate monobasic
powder, suitable for cell culture, suitable for insect cell culture, suitable for plant cell culture, ≥99.0%

RDD020
Potassium phosphate monobasic
anhydrous, free-flowing, Redi-Dri™, *ReagentPlus*®, ≥99.0% (titration)

P8709
Potassium Phosphate Monobasic solution
reagent grade, 1.0 M in solution

P5629
Potassium phosphate tribasic
reagent grade, ≥98%

RDD019
Potassium phosphate tribasic
anhydrous, free-flowing, Redi-Dri™, reagent grade, ≥98%

60359
Potassium phthalate monobasic
BioUltra, ≥99.5% (T)

T1378
Sigma 7-9®
≥99% (titration), crystalline

S1429
Sodium acetate
meets USP testing specifications, anhydrous

S5636
Sodium acetate
powder, BioReagent, suitable for electrophoresis, suitable for cell culture, suitable for insect cell culture, ≥99%

S7545
Sodium acetate
BioXtra, ≥99.0%

S2889
Sodium acetate
anhydrous, for molecular biology, ≥99%

71183
Sodium acetate
anhydrous, BioUltra, for luminescence, for molecular biology, ≥99.0% (NT)

S2404
Sodium acetate buffer solution
BioXtra, pH 7.0±0.05 (25 °C), for molecular biology, 3 M, non-sterile; 0.2 µm filtered

S7899
Sodium acetate buffer solution
pH 5.2±0.1 (25 °C), for molecular biology, 3 M, 0.2 µm filtered

71196
Sodium acetate solution
BioUltra, for molecular biology, ~3 M in H_2O

S1304
Sodium acetate trihydrate
meets USP testing specifications

S7670
Sodium acetate trihydrate
BioXtra, ≥99.0%

71188
Sodium acetate trihydrate
BioUltra, ≥99.5% (NT)

279293
Sodium acetate-1-^{13}C
99 atom % ^{13}C

298042
Sodium acetate-1-^{13}C,d_3
99 atom % ^{13}C, 99 atom % D

282014
Sodium acetate-$^{13}C_2$
99 atom % ^{13}C

299111
Sodium acetate-$^{13}C_2$,d_3
99 atom % D, 99 atom % ^{13}C

487805
Sodium acetate-$^{18}O_2$
95 atom % ^{18}O

279315
Sodium acetate-2-^{13}C
99 atom % ^{13}C

593125
Sodium acetate-2-^{13}C,d_3
99 atom % ^{13}C, 50-60 atom % D

299081
Sodium acetate-2-^{13}C,d_3
99 atom % D, 99 atom % ^{13}C

176079
Sodium acetate-d_3
99 atom % D

487031
Sodium bicarbonate-^{12}C
99.9 atom % ^{12}C

372382
Sodium bicarbonate-^{13}C
98 atom % ^{13}C, 99% (CP)

71679
Sodium bitartrate monohydrate
BioUltra, ≥99.0% (T)

C4945
Sodium cacodylate trihydrate
BioXtra, ≥98%

C0250
Sodium cacodylate trihydrate

≥98%

71345
Sodium carbonate
BioUltra, anhydrous, ≥99.5% (calc. on dry substance, T)

S7795
Sodium carbonate
BioXtra, ≥99.0%

490741
Sodium carbonate-^{12}C
99.9 atom % ^{12}C

490768
Sodium carbonate-^{13}C
99 atom % ^{13}C

C8532
Sodium citrate tribasic dihydrate
for molecular biology, ≥99%

C7254
Sodium citrate tribasic dihydrate
≥98%

71402
Sodium citrate tribasic dihydrate
BioUltra, for molecular biology

71406
Sodium citrate tribasic dihydrate
purum p.a., ≥99.0% (NT)

71642
Sodium phosphate dibasic
purum p.a., anhydrous, ≥98.0% (T)

RDD022
Sodium phosphate dibasic
anhydrous, free-flowing, Redi-Dri™, *ReagentPlus*®, ≥99.0%

S3264
Sodium phosphate dibasic
for molecular biology, ≥98.5% (titration)

S7907
Sodium phosphate dibasic
BioXtra, ≥99.0%

S0876
Sodium phosphate dibasic
ReagentPlus®, ≥99.0%

S5136
Sodium phosphate dibasic
BioReagent, suitable for cell culture, suitable for insect cell culture, ≥99.0%

71636
Sodium phosphate dibasic
BioUltra, for molecular biology, ≥99.5% (T)

71643
Sodium phosphate dibasic dihydrate
BioUltra, for molecular biology, ≥99.0% (T)

71645
Sodium phosphate dibasic dihydrate
BioXtra, ≥98.0% (T)

71662
Sodium phosphate dibasic dihydrate
tested according to Ph. Eur.

71649
Sodium phosphate dibasic dodecahydrate
BioXtra, ≥99.0% (T)

71663
Sodium phosphate dibasic dodecahydrate
tested according to Ph. Eur.

S2429
Sodium phosphate dibasic heptahydrate
meets USP testing specifications

94046
Sodium phosphate dibasic solution
BioUltra, 0.5 M in H_2O

RDD007
Sodium phosphate monobasic
anhydrous, free-flowing, Redi-Dri™, ≥99.0%

S5011
Sodium phosphate monobasic
BioPerformance Certified, suitable for cell culture, suitable for insect cell culture, suitable for plant cell culture, ≥99.0% (titration)

S8282
Sodium phosphate monobasic
BioXtra, ≥99.0%

S2554
Sodium phosphate monobasic
meets USP testing specifications, anhydrous

S0751
Sodium phosphate monobasic
ReagentPlus®, ≥99.0%

71496
Sodium phosphate monobasic
purum p.a., anhydrous, ≥99.0% (T)

71500
Sodium phosphate monobasic dihydrate
purum p.a., crystallized, ≥99.0% (T)

71505
Sodium phosphate monobasic dihydrate
BioUltra, for molecular biology, ≥99.0% (T)

71507
Sodium phosphate monobasic monohydrate
BioXtra, for molecular biology, ≥99.5% (T)

S3522
Sodium phosphate monobasic monohydrate
BioReagent, suitable for electrophoresis, 98.0-102.0%

74092
Sodium phosphate monobasic solution
BioUltra, 5 M in H_2O

609773
Sodium phosphate monobasic-$^{16}O_4$
99.9 atom % ^{16}O

04277
Sodium phosphate tribasic dodecahydrate
≥98%

S7778
Sodium phosphate tribasic dodecahydrate
BioXtra, ≥98.0% (titration)

71501
Sodium pyrophosphate dibasic
BioUltra, ≥99.0% (T)

71515
Sodium pyrophosphate tetrabasic decahydrate
BioUltra, ≥99.5% (T)

S6422
Sodium pyrophosphate tetrabasic decahydrate
BioXtra, 99.0-103.0%

S4797
Sodium tartrate dibasic dihydrate
BioXtra, ≥99.0%

B3545
Sodium tetraborate decahydrate
BioXtra, ≥99.5%

V900367
TAPS
Vetec™, reagent grade, 99.5%

T9659
TAPS
BioXtra, ≥99.5% (titration)

T5130
TAPS
≥99.5% (titration)

T5441
TAPS sodium salt
BioPerformance Certified, suitable for cell culture, ≥99%

T0647
TAPS sodium salt
≥99% (titration)

T9269
TAPSO

≥99% (titration)

V900447
TAPSO
Vetec™, reagent grade, ≥99%

V900476
TES
Vetec™, reagent grade, 99%

T1375
TES
≥99% (titration)

T1030
TES hemisodium salt

T0772
TES sodium salt
≥99% (titration)

T0377
Tricine
≥99% (titration)

T9784
Tricine
BioXtra, pH 4.0-6.0 (1 M in H_2O), ≥99% (titration)

RDD024
Tricine
anhydrous, free-flowing, Redi-Dri™, ≥99%

V900412
Tricine
Vetec™, reagent grade, ≥99%

T17917
Tricine
≥99% (titration), reagent grade, crystalline

T5816
Tricine
BioPerformance Certified, suitable for cell culture, ≥99% (titration)

T1502
Triethanolamine hydrochloride

≥99.5% (titration)

90337
Triethylamine
for amino acid analysis, ≥99.5% (GC)

90335
Triethylamine
BioUltra, ≥99.5% (GC)

90338
Triethylamine
for protein sequence analysis, ampule, ≥99.5% (GC)

90358
Triethylammonium acetate buffer
volatile buffer, ~1.0 M in H_2O

T7408
Triethylammonium bicarbonate buffer
1.0 M, pH 8.5±0.1

90360
Triethylammonium bicarbonate buffer
volatile buffer, ~1.0 M in H_2O

90362
Triethylammonium phosphate solution
BioXtra, 1 M in H_2O

TRIS-RO
Tris base
=99.9% (titration), abs., 100 mg/mL, 300 nm ≤0.015

329940
Tris(hydroxy-d-methyl)amino-d_2-methane
98 atom % D

703117
Tris(hydroxymethyl-^{13}C)aminomethane
99 atom % ^{13}C, 97% (CP)

252859
Tris(hydroxymethyl)aminomethane
ACS reagent, ≥99.8%

S1804
Trisodium citrate dihydrate
meets USP testing specifications

93337
Trizma® acetate
BioUltra, ≥99.0% (NT)

T1258
Trizma® acetate
≥99.0% (titration)

T6791
Trizma® base
BioXtra, pH 10.5-12.0 (1 M in H_2O), ≥99.9% (titration)

T1503
Trizma® base
Primary Standard and Buffer, ≥99.9% (titration), crystalline

T6066
Trizma® base
BioPerformance Certified, meets EP, USP testing specifications, suitable for cell culture, ≥99.9% (titration)

T4661
Trizma® base
≥99.9% (titration), crystalline

93352
Trizma® base
≥99.0% (T)

93362
Trizma® base
BioUltra, for molecular biology, ≥99.8% (T)

93350
Trizma® base
puriss. p.a., ≥99.7% (T)

V900483
Trizma® base
Vetec™, reagent grade, ≥99%

RDD008
Trizma® base
anhydrous, free-flowing, Redi-Dri™, ≥99.9%

T1699
Trizma® base solution
1.5 M

T6666
Trizma® hydrochloride
pH 3.5-5.0 (0.5 M in H_2O), BioXtra, ≥99.0% (titration)

RDD009
Trizma® hydrochloride
anhydrous, free-flowing, Redi-Dri™, ≥99.0%

V900312
Trizma® hydrochloride
Vetec™, reagent grade, ≥99%

93363
Trizma® hydrochloride
BioUltra, for molecular biology, ≥99.0% (AT)

T3253
Trizma® hydrochloride
reagent grade, ≥99.0% (titration), crystalline

T5941
Trizma® hydrochloride
BioPerformance Certified, suitable for cell culture, ≥99.0% (titration)

41573
Trizma® hydrochloride buffer solution
BioUltra, for molecular biology, pH 7.2

T2663
Trizma® hydrochloride solution
1 M, BioReagent, for molecular biology

T3038
Trizma® hydrochloride solution
1 M, BioReagent, for molecular biology

T2194
Trizma® hydrochloride solution
pH 7.4, BioPerformance Certified, 1 M, suitable for cell culture

T2069
Trizma® hydrochloride solution
pH 7.2, BioPerformance Certified, 1 M, suitable for cell culture

T2944
Trizma® hydrochloride solution
BioPerformance Certified, suitable for cell culture, pH 7.5

T2819
Trizma® hydrochloride solution
pH 9.0, BioPerformance Certified, 1 M, suitable for cell culture

T2319
Trizma® hydrochloride solution
pH 7.5, BioPerformance Certified, 1 M, suitable for cell culture

T2444
Trizma® hydrochloride solution
pH 7.6, BioPerformance Certified, 1 M, suitable for cell culture

T1819
Trizma® hydrochloride solution
pH 7.0, BioPerformance Certified, 1 M, suitable for cell culture

T2569
Trizma® hydrochloride solution
pH 7.8, BioPerformance Certified, 1 M, suitable for cell culture

T3069
Trizma® hydrochloride solution
pH 8.0, BioPerformance Certified, 2 M, suitable for cell culture

T2694
Trizma® hydrochloride solution
pH 8.0, BioPerformance Certified, 1 M, suitable for cell culture

93328

Trizma® maleate
BioUltra, ≥99.5% (NT)

T3128
Trizma® maleate

93348
Trizma® phosphate monobasic
BioXtra, ≥99.0% (NT)

T1753
Trizma® Pre-Set Crystals
Type 7.4-FT, pH 7.4, suitable for use with fresh water species

T1878
Trizma® Pre-Set crystals
Type 8.3-FT, pH 8.3, suitable for use with marine species

T7818
Trizma® Pre-set crystals
BioPerformance Certified, pH 7.5, average M_w 150.6

T8068
Trizma® Pre-set crystals
BioPerformance Certified, pH 7.7, average M_w 147.6

T1194
Trizma® Pre-set crystals
BioPerformance Certified, pH 8.5, average M_w 131.4

T8193
Trizma® Pre-set crystals
BioPerformance Certified, pH 7.8, average M_w 145.8

T8818
Trizma® Pre-set crystals
BioPerformance Certified, pH 8.5, average M_w 131.4

T7943
Trizma® Pre-set crystals
BioPerformance Certified, pH 7.6, average M_w 149.0

T7443
Trizma® Pre-set crystals
BioPerformance Certified, pH 7.2, average M_w 153.8

T0319
Trizma® Pre-set crystals
BioPerformance Certified, pH 7.4, average M_w 151.6

T9693
Trizma® Pre-set crystals
BioPerformance Certified, pH 9.0, average M_w 124.6

T7693
Trizma® Pre-set crystals
BioPerformance Certified, pH 7.4, average M_w 151.6

T8443
Trizma® Pre-set crystals
BioPerformance Certified, pH 8.0, average M_w 141.8

T9568
Trizma® Pre-set crystals
BioPerformance Certified, pH 8.9, average M_w 125.6

T8568
Trizma® Pre-set crystals
BioPerformance Certified, pH 8.1, average M_w 139.8

T7193
Trizma® Pre-set crystals
BioPerformance Certified, pH 7.0, average M_w 154.8

T9943
Trizma® Pre-set crystals
BioPerformance Certified, pH 7.0, average M_w 154.8

T8943
Trizma® Pre-set crystals
BioPerformance Certified, pH 8.3, average M_w 135.4

T6687
Tromethamine
meets USP testing specifications

T2145
Tyrode's Salts
Without sodium bicarbonate, powder, suitable for cell culture

Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
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Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
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Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35
Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

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