

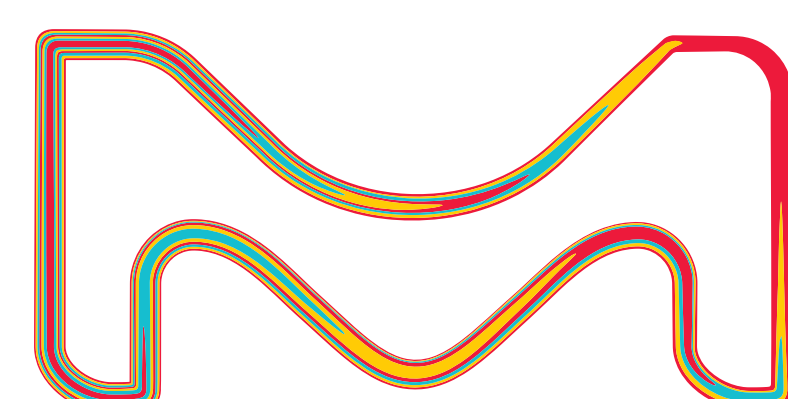
# BIOLOGICAL BUFFERS SELECTION GUIDE

Buffer Name	CAS #	d(pKa)/°C	pKa at Temperature				Grade & Product Number					Useful pH Range					
			5 °C	20 °C	25 °C	37 °C	Reagent or % purity	BioPerformance CertifiedB	BioXtra	BioUltra	PharmaGrade***	5	6	7	8	9	10
MES hydrate**	4432-31-9	-0.009	6.45	6.31	6.27	6.16	M8250	M2933	M5287	69890	PHG0003	5.5 - 6.7					
MES monohydrate**	145224-94-8	-0.009	6.45	6.31	6.27	6.16	-	-	69892	69889	RES0113M-A7	5.5 - 6.7					
BIS-TRIS*	6976-37-0	-0.017	6.83	6.56	6.48	6.29	B9754	B4429	B7535	14879	RES1161B -A7/ PHG0004	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	-	RES0703P -A7	6.1 - 7.5					
ACES	7365-82-4	-0.019	7.23	6.93	6.84	6.64	A9758	A3594	A7949	00194	RES1000A -A7	6.1 - 7.5					
MOPSO**	68399-77-9	-0.016	7.23	6.95	6.87	6.69	M8389	-	-	-	RES0196M -B7	6.2 - 7.6					
BIS-TRIS propane	64431-96-5				6.75 pK <sub>a1</sub> 9.10 pK <sub>a2</sub>		B6755	B4679	B9410	-	PHG0005	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	PHG0007	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	RES6003H -B7/ PHG0001	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	RES3193T -A7	7.0 - 9.0					
TRICINE	5704-04-1	-0.019	8.54	8.23	8.14	7.91	T0377	T5816	T9784	93356	RES3077T -A7	7.4 - 8.8					
GLY-GLY	556-50-3	-0.026	8.81	8.39	8.27	7.94	G1002	G3915	50200	50199	G0674	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	RES1151B -B7	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	RES1299C -B7	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					

\*Also available as a hydrochloride salt  
 \*\*Also available as a sodium salt  
 \*\*\*Compliant to GMP or Sigma-Aldrich Elite quality



For more information visit:  
[SigmaAldrich.com/buffer](https://SigmaAldrich.com/buffer)



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