

Product Information

BIOLOGICAL BUFFERS

The table below describes several biological buffers available from Sigma. These buffers may be useful in cell culture applications when pH maintenance is critical and normal bicarbonate buffering is not adequate. For your convenience, we have listed the pKa values of these buffers at 37°C, and ranges of working concentrations. Cells vary in their sensitivity to these buffers, and may exhibit toxic reactions to them even at recommended working concentrations. We recommend that you consult the literature or test different buffer concentrations to determine the most effective supplement for a particular cell type and for individual culture conditions. The osmolality of some media may reach adverse levels when buffers are added. Should this occur, lowering the concentration of sodium chloride may correct this condition.

CELL CULTURE TESTED BIOLOGICAL BUFFERS

Product Number	Description	Physical Form ^A	pKa (37° C)	Δ pKa/°C	Anhydrous Mol. Wt.	Working Concentration (mM)	Buffering Range (37° C)
B 6266	BES	P	6.9	-0.016	213.2	10 - 20	6.2 - 7.6
B 6391	BIS-TRIS	P	6.36	-0.008	209.2	10 - 20	5.7 - 7.1
E 7758	EPPS	P	7.85	-0.015	132.1	10 - 20	7.1 - 8.5
G 1643	GLYCINE (1.0 M)	AF	9.53	-0.021	75.0	50 - 200	8.7 - 10.7
G 2265	GLYCYLGLYCINE	P	7.95	-0.025	132.1	10 - 20	7.2 - 8.6
H 9136	HEPES	P	7.31	-0.014	238.3	10 - 28	6.6 - 8.0
H 0763	HEPES•Na	P	7.31	-0.014	260.3	10 - 28	6.6 - 8.0
H 0887	HEPES (1.0 M)	AF	7.31	-0.014	238.3	10 - 28	6.6 - 8.0
M 6270	MOPS	P	7.01C	-0.008	209.3	10 - 20	7.0 - 8.4
P 8658	PIPES	P	6.66	-0.009	302.4	10 - 20	6.0 - 7.4
S 5761	SODIUM BICARBONATE	P	6.28	-0.0055	84.0	2 - 26	5.4 - 6.9
S 8761	SODIUM BICARBONATE (7.5%)	AF	6.28	-0.0055	84.0	2 - 26	5.4 - 6.9
T 1650	TAPSO ^B	P	7.4	-0.018	259.3	4 - 50	6.8 - 8.0
T 6022	TES	P	7.16	-0.02	229.2	10 - 20	6.5 - 7.9
T 6272	TRICINE	P	7.8	-0.021	179.2	>50	7.1 - 8.5
T 1410	TRIZMA BASE	P	7.82	-0.031	121.1	10 - 20	6.8 - 8.8
T 1535	TRIZMA HYDROCHLORIDE	P	7.82	-0.031	157.6	10 - 20	6.8 - 8.8

^AProducts are offered either as a powder (P) or aseptically-filled solution (AF).

^BU.S. Patent No. 4,246,194

^CDetermined by Sigma

REFERENCES

1. Good, N. et al. (1966). *Biochemistry* 5:467.
2. Good, N. and Izawa, S. (1968). *Methods in Enzymol.* Vol. 24 (Part B):53.
3. Ferguson, W. and Good, N. (1980). *Anal. Biochem.* 100:300.
4. Blanchard, J. (1984). *Methods in Enzymol.* 104:404