

Common Buffer pKa Table

pKa at 25 degrees C, temperature coefficient, and useful pH range for ten common lab buffers.

Acidic

Buffer	pKa (25°C)	dpKa/dT	Useful pH range	Category
Glycine (pKa1, alpha-carboxyl)	2.35	-0.0020	1.4-3.4	Traditional buffer
Acetate	4.76	0.0002	3.8-5.8	Traditional buffer
Citrate (middle pKa)	4.76	-0.0024	3.8-5.8	Traditional buffer

Near-neutral

Buffer	pKa (25°C)	dpKa/dT	Useful pH range	Category
MES	6.15	-0.0110	5.2-7.2	Zwitterionic (Good's buffer)
PIPES	6.76	-0.0085	5.8-7.8	Zwitterionic (Good's buffer)
MOPS	7.20	-0.0150	6.2-8.2	Zwitterionic (Good's buffer)
Phosphate (H ₂ PO ₄ ⁻ /HPO ₄ ²⁻)	7.21	-0.0028	6.2-8.2	Traditional buffer
HEPES	7.48	-0.0140	6.5-8.5	Zwitterionic (Good's buffer)
Tris	8.06	-0.0310	7.1-9.1	Zwitterionic (Good's buffer)

Basic

Buffer	pKa (25°C)	dpKa/dT	Useful pH range	Category
Borate	9.24	-0.0080	8.2-10.2	Traditional buffer

Buffering range = pKa ± 1. Choose a buffer whose pKa sits within one unit of your target pH.

Source: Sigma-Aldrich Buffer Reference Center; Good et al. (1966, 1980). Reused from `src/lib/bufferPkaReference.ts`.

Generated 23 Jul 2026

For the chemistry of buffer preparation, see Vol 1, Ch 2 of the *Biotech Techniques Bible*.

© NexagenLabs, Suryaprakash Tripathy. BenchMate Free, the companion app to the *Biotech Techniques Bible* series.

