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Phosphate Buffer

In 1 collection

Neilier Junior¹¹Universidade Federal de Viçosa

1 Works for me dx.doi.org/10.17504/protocols.io.bfygptw



Neilier Junior

Universidade Federal de Viçosa

ABSTRACT

A buffer solution has the function of resisting changes in pH even when adding powerful acids or bases. However, in the physiological environment the buffered system also provides cofactors for enzymatic reactions, critical salts and even essential nutrients for cells and tissues. Therefore, when trying to reproduce biological conditions in vitro, we must make the appropriate choice of the buffer. After all, it will provide the appropriate medium in which reactions will occur.

MATERIALS TEXT

- Deionized Water
- pH Meter (sensitive)
- Sodium Phosphate Monobasic
- Sodium Phosphate Dibasic

SAFETY WARNINGS

Wear personal protective equipment: gloves, lab coat and mask.

BEFORE STARTING

Organize your workspace.

Make sure all solutions and equipment are available.

Phosphate Buffer

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pH range: pH5.8 to pH8.0

(a) 0.1 M Sodium phosphate monobasic; 13.8 g L⁻¹ (monohydrate, M.W. 138.0 g mol⁻¹)

(b) 0.1 M Sodium phosphate dibasic; 26.8 g L⁻¹ (heptahydrate, M.W. 268.0 g mol⁻¹)

Mix sodium phosphate monobasic and dibasic solutions in the proportions indicated.

mL of Sodium phosphate, Monobasic	92.0	81.5	73.5	62.5	51.0	39.0	28.0	19.0	13.0	8.5	5.3
mL of Sodium phosphate, Dibasic	8.0	18.5	26.5	37.5	49.0	61.0	72.0	81.0	87.0	91.5	94.7
pH	5.8	6.2	6.4	6.6	6.8	7.0	7.2	7.4	7.6	7.8	8.0

2 Adjust the final volume to 200 ml with deionized water.

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- 3 Adjust the final pH using a sensitive pH meter.