

Jun 03, 2020

Carbonate-Bicarbonate Buffer

 In 1 collection

DOI

dx.doi.org/10.17504/protocols.io.bfyijpue

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DOI: dx.doi.org/10.17504/protocols.io.bfyijpue

Protocol Citation: Neillier Junior 2020. Carbonate-Bicarbonate Buffer. **protocols.io**

<https://dx.doi.org/10.17504/protocols.io.bfyijpue>

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Protocol status: Working

We use this protocol and it's working

Created: May 05, 2020

Last Modified: June 03, 2020

Protocol Integer ID: 36586

Keywords: pH, Henderson-HasselBack, Biochemistry, Molecular Biology,



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

- ph Meter (sensitive)
- Deionized Water
- Sodium Carbonate
- Sodium Bicarbonate

Safety warnings

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

Before start

Organize your workspace.



Make sure all solutions and equipment are available.



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Note

pH range:  9.2 to  10.6

(a) 0.1 M Sodium carbonate (anhydrous), 10.6 g L⁻¹ (M.W.: 106.0 g mol⁻¹)

(b) 0.1 M Sodium bicarbonate, 8.4 g L⁻¹ (M.W.: 84.0 g mol⁻¹)

Mix sodium carbonate and sodium bicarbonate solutions in the proportions indicated.

mL of Sodium carbonate	4.0	9.5	16.0	22.0	27.5	33.0	38.5	42.5
mL of Sodium bicarbonate	46.0	40.5	34.0	28.0	22.5	17.0	11.5	7.5
pH	9.2	9.4	9.6	9.8	10.0	10.2	10.4	10.6

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

3 Adjust the final pH using a sensitive pH meter.