

A NEW BUFFER FOR THE P_H -RANGE 5 TO 7

by

G. SMITS

Laboratory for Physiological Chemistry of the University of Amsterdam and Central Institute for Nutrition Research, Utrecht (Netherlands)

In the course of my investigations on the influence of metal-ions on the enzyme carboxylase, I wanted a buffer that satisfied the following conditions:

1. It should have a sufficient buffering-capacity in the p_H -range 5 to 7.
2. It should not give precipitates with bivalent cations as Mg^{++} , Mn^{++} , Cu^{++} , Co^{++} , Zn^{++} , etc.
3. It should not affect aneurin and its pyrophosphoric acid ester.
4. It should not influence the carboxylase-activity of yeast preparations.

None of the usually employed buffer solutions satisfied these conditions, e.g., aneurin is decomposed by veronal. Good results however were obtained with buffers consisting of mixtures of mono- and di-sodiummaleinate. As they may be of use to other workers my data are recorded below.

The solutions were prepared as follows:

I. Monosodiummaleinate: 1.160 grams of maleic acid dissolved in 0.100 n sodiumhydroxide to 100 ml.

II. Disodiummaleinate: 1.160 grams of maleic acid dissolved in 0.200 n sodiumhydroxide to 100 ml.

The p_H of mixtures of these solutions was determined by means of the glass-electrode (temp. 18°C). The results are collected in Table I and Figure 1.

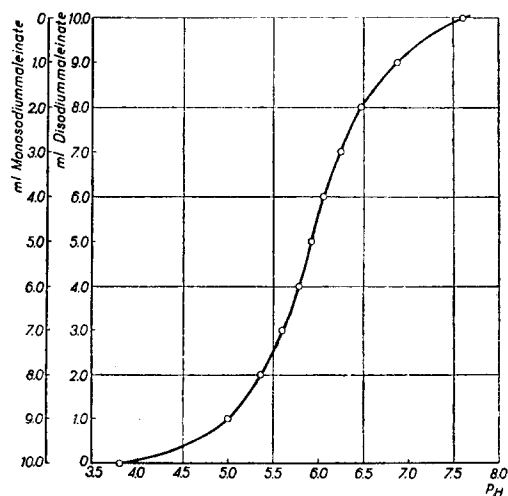


TABLE I

ml of sol. I	ml of sol. II	P_H
0	10.0	7.76
1.0	9.0	6.82
2.0	8.0	6.49
3.0	7.0	6.26
4.0	6.0	6.08
5.0	5.0	5.93
6.0	4.0	5.79
7.0	3.0	5.63
8.0	2.0	5.36
9.0	1.0	4.99
10.0	0.0	3.81

Fig. 1. p_H as dependent upon composition of mono- and disodium maleinate mixtures.

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