XII. THE PREPARATION OF SÖRENSEN'S PHOSPHATE SOLUTIONS WHEN THE PURE SALTS ARE NOT AVAILABLE.

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I HAVE found the following method useful and satisfactory when away from the resources of a well-equipped laboratory during the war, and it may be useful to others at the present time.

Recrystallise $\text{NaH}_2\text{PO}_4 \cdot \text{H}_2\text{O}$ of the B.P. Dry in air between filter paper. Make a supposed $M/7.5$ solution of the recrystallised salt. Titrate 10 cc. of this against $N/7.5$ NaOH , adding 0.05 cc. of 0.5 % solution of phenolphthalein as indicator. Add the soda until, at 18°C. , the colour is of the same intensity as that of a 0.0025 % sol of KMnO_4 .

If exactly 10 cc. of the $N/7.5$ NaOH is required, a $M/15$ solution of Na_2HPO_4 results. I have usually found, however, that slightly less than 10 cc. is required owing to imperfect drying of the recrystallised salt. We will call a the cc. NaOH required.

To make a litre of each phosphate solution proceed as follows:

(1) For $M/15$ NaH_2PO_4 dissolve $\frac{138.1}{15} \times \frac{10}{a}$ g. of the recrystallised salt and make up to 1 litre.

(2) For $M/15$ Na_2HPO_4 dissolve $\frac{138.1}{15} \times \frac{10}{a}$ g. of the recrystallised salt in about 500 cc., add 66.66 cc. of N NaOH and make up to a litre.

The proportion in which these two solutions should be mixed to obtain any hydrogen ion concentration between $\text{P}_\text{H} = 6$ and $\text{P}_\text{H} = 8$ (within which range they are usable) is given by Sørensen [1909] and by Walpole [1911, 1914].

Moulds grow in phosphate solutions readily and are particularly troublesome in hot climates. Most antiseptics are not permissible. I have obviated this source of trouble by shaking the solutions with a little calomel for a few minutes and then filtering.

REFERENCES.

- Sørensen (1909). *Compt. rend. Lab. Carlsberg*, 8, 1.
Walpole (1911). *Biochem. J.* 5, 207.
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