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Use of Hydrogen Peroxide for Organic Oxidations.

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In the use of hydrogen peroxide to facilitate micro-organic oxidations, we encountered certain difficulties and feel that our experience may be of value to other investigators.

Hydrogen peroxide, though well adapted for oxidation generally, cannot be used in the determination of organic phosphorus. The market products very frequently contain phosphate or one of the other substances giving like reactions. Of 6 samples tested within the last 2 years, 4 contained considerable amounts of this substance and 2 contained traces. Using the Tisdall method[1] the following results were obtained:

Sample No.	Description	Phosphate Content mg. per 100 cc.
1.	Superoxol	0.03
2.	Perhydrol	trace
3.	Superoxol	2.7
4.	Superoxol	2.8
5.	Hydrogen peroxide Solution of Hydrogen Dioxide.	1.5
6.	"	1.8

When the strychnine molydate solution is added to diluted superoxol or to the solution of hydrogen dioxide, no precipitate is obtained. This is not due to dilution of the phosphate content. If 50 cc. of the hydrogen dioxide solution is evaporated (water bath) nearly to dryness and the residue dissolved in 5 cc. H_2O, no precipitate results. However, when it is evaporated until completely dry and the residue then dissolved in 5 cc. of water, a very heavy precipitate quickly separates out. Superoxol (2 cc.) evaporated to dryness shows a phosphate content of 0.032 mg. which is equivalent to 1.6 mg. per 100 cc. After digestion, 2 cc. of the same preparation yields 2.7 mg. per 100 cc. There seems to be some substance in the superoxol, as well as in the solution of hydrogen dioxide, that interferes with the precipitation of phosphate.

[1] Tisdall, F. F., *J. Biol. Chem.*, 1922, l, 329.