

foregoing there be required to be printed on the bag or on the tag to be attached to the bag or to accompany fertilizers sold in bulk an explanatory statement naming the materials in which the plant food is carried, as, for example :

The plant food guaranteed in this fertilizer is carried in cotton-seed meal, potassium chloride, and acid phosphate.

Foodstuffs, Condiments, Etc.

In the case of foodstuffs, condiments, etc., your committee recommends in the statement of analytical results the use of names of compounds (or groups of compounds) actually present as such in the material, this being in accordance with the present practice.

Your committee asks for further time in which to consider the more complete unification of systems for reporting results of analysis of some miscellaneous materials, as insecticides, baking powders, etc.

It is further recommended that this association appoint a committee to aid (preferably in cooperation with a similar committee from the Association of Official Agricultural Chemists) in trying to bring about both national and international uniformity in the reporting of analytical results."

This report with the conditions stated as presented by the committee was adopted by the Association of American Agricultural Colleges and Experiment Stations, and on behalf of that association I now present this report to the American Chemical Society and ask for its endorsement.

UNIVERSITY OF ILLINOIS,
Urbana, Ill.

CONTRIBUTION TO THE DETERMINATION OF PHOSPHORIC ACID VOLUMETRICALLY.

BY W. D. RICHARDSON.
Received July 11th, 1907.

It is a fact fairly well known among agricultural chemists that when phosphoric acid is determined in acid phosphate by the Pemberton volumetric method or its usual modifications results are obtained which do not agree with those obtained by the gravimetric method of the A. O. A. C. and the error frequently amounts to + 1 per cent. P_2O_5 . Inasmuch as the volumetric method in general agrees well with the gravimetric and as it is a desirable method to use, a search was made in this laboratory for the substance which caused the discrepancy.

A check sample of an ordinary run of acid phosphate was sent out to a number of chemists and the results were in accord with previous experience, that is differences amounting in the extreme case to 1.2 per cent- P_2O_5 were recorded. Following this, mixtures of microcosmic salt and the impurities usually present in acid phosphate, namely lead salts, fluorides, arsenic compounds and silicic acid were made and the P_2O_5 in them

determined by the modified Pemberton method of the A. O. A. C. In no case could any serious discrepancy be observed. About this time, Mr. J. F. Wilkinson, suggested that sulphuric acid was the disturbing substance and that if it were previously removed by means of barium chloride the volumetric method could be applied as usual and accurate results obtained. This proved to be the case. Experiments were conducted with solutions of phosphate rock in hydrochloric acid to which were added respectively sulphuric acid, sodium sulphate and calcium sulphate, in which the P_2O_5 was determined by the volumetric method. The results did not agree with those obtained by the A. O. A. C. gravimetric method when working on the same solutions and varied from 0.2 to 1.00 per cent. P_2O_5 above the gravimetric method. In other words the sulphate ion invariably caused greater or smaller discrepancies. The work shows the necessity of excluding sulphuric acid from the reagents used to dissolve phosphate containing fertilizers for analysis.

The following working method was adopted for fertilizers, particularly acid phosphate, containing sulphates. A long and thorough trial has demonstrated its accuracy and value.

Weigh two grams into a 250 cc. flask, digest by boiling with 30 cc. concentrated nitric acid and 5 cc. concentrated hydrochloric acid, then add 10 cc. water and boil for five minutes. Add 25-30 cc. of 10 per cent. barium chloride solution, cool and make up to volume. Filter through a dry filter, rejecting the first portion of the filtrate and take 25 cc. for the determination. From this point on follow the A. O. A. C. modification of the Pemberton method.

In the presence of sulphates, sulphuric acid or a sulphate was always found by analysis in the yellow precipitate of ammonium phospho-molybdate and it is altogether probable that a complex ammonium sulpho-molybdate is formed under the conditions of phosphoric acid precipitation by ammonium molybdate which has the acid nature of ammonium phospho-molybdate and therefore reacts with alkali and phenolphthalein similarly to the latter.

The analytical work mentioned was carried out in large part by Mr. John Jepsen of this laboratory.

LABORATORY OF SWIFT & CO.,
Chicago.

[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF THE
UNIVERSITY OF ILLINOIS.]

A GASOMETRIC METHOD FOR THE DETERMINATION OF HYDROGEN PEROXIDE.

BY WILLIAM M. DEHN.

Received June 18, 1907.

The apparatus depicted in the figure was designed as an ureometer; its construction and the application to this purpose are described in another