

1939

## A Quantitative Spectrographic Study on the Effects of the Alkali Metals upon the Determination of Calcium

Louis Waldbauer  
*State University of Iowa*

John A. Means  
*State University of Iowa*

Copyright © Copyright 1939 by the Iowa Academy of Science, Inc.  
Follow this and additional works at: <https://scholarworks.uni.edu/pias>

---

### Recommended Citation

Waldbauer, Louis and Means, John A. (1939) "A Quantitative Spectrographic Study on the Effects of the Alkali Metals upon the Determination of Calcium," *Proceedings of the Iowa Academy of Science*: Vol. 46: No. 1 , Article 35.  
Available at: <https://scholarworks.uni.edu/pias/vol46/iss1/35>

This Research is brought to you for free and open access by UNI ScholarWorks. It has been accepted for inclusion in Proceedings of the Iowa Academy of Science by an authorized editor of UNI ScholarWorks. For more information, please contact [scholarworks@uni.edu](mailto:scholarworks@uni.edu).

of moisture, but within the temperature ranges studied, we feel justified in stating that the solvating power of anhydrous magnesium bromide is not a function of its preparation temperature.

PHYSICAL CHEMISTRY LABORATORIES,  
STATE UNIVERSITY OF IOWA,  
IOWA CITY, IOWA.

---

### THE CONSTRUCTION AND USE OF A CONCAVE GRATING SPECTROGRAPH

W. C. OELKE AND GEORGE MONTROSS

In order to learn some of the fundamentals of analytical spectrography, a concave grating spectrograph was constructed as a cooperative student-faculty project. Details of construction and methods of use were given. Both qualitative and quantitative applications of the instrument are considered.

DEPARTMENT OF CHEMISTRY,  
GRINNELL COLLEGE,  
GRINNELL, IOWA.

---

### A QUANTITATIVE SPECTROGRAPHIC STUDY ON THE EFFECTS OF THE ALKALI METALS UPON THE DETERMINATION OF CALCIUM

LOUIS WALDBAUER AND JOHN A. MEANS

It has been known for some time that in spectrographic analysis each element present has some effect upon the other elements present. Our investigation of the effect of the alkali metals on calcium showed that, in general, the intensity of the spectral lines of calcium increased with an increase in the percentage of the alkali metal present. However, there is a decrease in the intensifying effect at the higher concentrations. The chlorides of the alkali metals used were in concentrations varying from 1.0 per cent to 0.031 per cent, and the concentrations of the calcium solutions used varied approximately over the same range. Slides were

used to show the apparatus used (including the wedge sector), typical spectrograms, and also to show some of the data obtained in graphical form.

DEPARTMENT OF CHEMISTRY,  
STATE UNIVERSITY OF IOWA,  
IOWA CITY, IOWA.

---

FREEZING POINT CURVES OF IODINE MONOCHLORIDE MIXED WITH IODINE, ACETIC ACID, OR CARBON TETRACHLORIDE

JACOB CORNOG AND LEONARD OLSON

The curve obtained with iodine differs from the curve obtained by previous workers; the acetic acid curve approximates expectation based on Raoult's Law; the carbon tetrachloride curve indicates the formation of solid substances.

DEPARTMENT OF CHEMISTRY,  
STATE UNIVERSITY OF IOWA,  
IOWA CITY, IOWA.

---

THE SOLUBILITY OF IGNITED FERRIC AND CHROMIC OXIDES

JACOB CORNOG AND DOROTHY BUCK

In the gravimetric determination of iron the metal is frequently precipitated as the hydroxide by ammonia. It is then collected by filtration, dried, ignited and weighed as the oxide. Such precipitates when wet, as hydroxides, dissolve instantaneously in acids. After the precipitate has been ignited it often becomes practically insoluble. Such ignition gives a range of temperature of 600°-1000°C, depending on the type of heating device used. Kolthoff and Sandell suggest the fusion of this ignited ammonia precipitate with alkali pyrosulfate "in order to convert the oxides into sulfate which then can be dissolved." This procedure is troublesome because the alkali must then be removed before the iron is determined either volumetrically or gravimetrically.

Chromium is not usually determined in this way because the