only at higher temperatures. The monofluorides are inferior anesthetic agents while the difluorides have no such effect. These behaviors are in good agreement with the facts recently demonstrated that the atomic distances between the C and F atoms is 1.41 Å. in the monofluorides, while it is only 1.36 Å. in the difluorides.[2]

	B. p., °C.	Per cent. F Calcd.	Per cent. F Found	Per cent. Cl Calcd.	Per cent. Cl Found
$CHCl_2F$	8.9 to 9.0	18.4	18.1	68.0	68.2
$CHClF_2$	−40.8 to −40.6	43.9	43.5	40.1	40.4
CH_2ClF	− 9.0 to − 9.1	27.7	27.4	51.8	51.8
CH_2F_2	−51.6	74.1	74.1	...	...

The analyses were carried out as described previously.[3]

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[2] Brockway, *J. Phys. Chem.*, **41**, 185 (1937).

[3] Henne and Hubbard, THIS JOURNAL, **58**, 406 (1936), and **56**, 1078 (1934).

DEPARTMENT OF CHEMISTRY
THE OHIO STATE UNIVERSITY
COLUMBUS, OHIO
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Standardization of Ceric Sulfate with Potassium Iodide by the Acetone Method

BY DAVID LEWIS

That ceric sulfate can be substituted for potassium permanganate in oxidimetry has been established by many investigators. Among the reactions which take place quantitatively with both reagents is the oxidation of iodides. In a recent paper Kolthoff, Laitinen and Lingane[1] have shown that pure potassium iodide can be used as a primary standard for permanganate.

One of the indicator titration methods studied by them was the acetone method of Berg.[2] They report poor reproducibility and low results by this method. The writer's experience with this titration using ceric sulfate as oxidant is of interest in this connection. As previously demonstrated[3] the titer varies with the acid concentration. Within the range 0.9–2.7 *N* sulfuric acid the results are accurate to 0.1%. Below this range low results, above it high results, are obtained. With potassium iodate Berg recommends that the solution be 2–2.5 *N* in sulfuric acid. The low results of Kolthoff, *et al.*, were obtained in solutions initially 0.9 *N*. Since the reaction between acetone and iodine is acid catalyzed, these low results are attributed to a low rate of reaction. As the end-point of this titration seldom lasts more than three minutes under the best conditions of acidity, it is not the low rate of reaction but probably the concomitant production of new reducing substances which causes too much oxidant to be used. The most suitable acidity seems to vary with the oxidant.

In the routine standardization of ceric sulfate solutions with sodium oxalate, the writer has included a comparison with potassium iodide by the acetone method and potentiometrically. All three agree to ±0.1–0.2%. The potassium iodide was analytical reagent (Mallinckrodt) and was dried at 125–130° for three hours before use. For the accuracy indicated this treatment is sufficient, since titrations of aliquots by the acetone method and potentiometrically check to 0.1%.

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[1] Kolthoff, Laitinen and Lingane, THIS JOURNAL, **59**, 429 (1937).

[2] Berg, *Z. anal. Chem.*, **69**, 369 (1926).

[3] D. Lewis, *Ind. Eng. Chem.*, *Anal. Ed.*, **8**, 199 (1936).

DEPARTMENT OF CHEMISTRY
THE CITY COLLEGE
COLLEGE OF THE CITY OF NEW YORK
NEW YORK, N. Y.
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The Siene Bean. The Composition of Siene Beans. Some Characteristics of Siene Bean Oil

BY TOM S. PERRIN

The sturdy growth and abundance of fruit exhibited by the siene bean plant attracted the writer's attention. This investigation was undertaken with the idea that a knowledge of the composition of the seeds might reveal a use for them, as was the case with soy beans.[1]

The siene bean plant (*Daubentonio longifolia*), sometimes called "coffee bean" or "rattle box," grows abundantly both inland and along the Gulf Coast of Texas and Florida as a wild plant.[2] It is a perennial plant that may grow as large as the average peach tree. The tree produces a seed similar to that of the soy bean, the pod containing from four to eight seeds. Siene beans are very hardy and bear prolifically, producing fruit even the first year. Three pounds of shelled beans were gathered from one tree. The seeds are extremely toxic to sheep[3] and, as found in this Laboratory, to guinea pigs.

Standard procedures[4] were used in all deter-

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[1] Burlison, *Ind. Eng. Chem.*, **28**, 772 (1936).

[2] Schulz, "Texas Wild Flowers," Laidlaw Brothers, New York, 1928, p. 154.

[3] Marsh and Clawson, *J. Agr. Research*, **20**, 507–513 (1922); *Analyst*, **46**, 145.

[4] "Methods of Analysis of A. O. A. C.," Assoc. Agr. Chem. Washington, D. C., 1935, pp. 335–352, pp. 404–429.