

DEPARTMENT OF COMMERCE

Bureau of Standards

Certificate of Analysis

OF

STANDARD SAMPLE No. 40c

SODIUM OXALATE

ANALYSIS¹

H ₂ O 105° C.	Loss between 105° and 240° C.	NaHC ₂ O ₄	Na ₂ SO ₄	K	Fe ₂ O ₃ , Al ₂ O ₃ , and other substances precipitated by NH ₄ OH	Cl	Density ²⁵ / ₄
0.01	0.05	0.04	0.005	None found	None found	0.001	2.347

¹ By J. I. Hoffman, Bureau of Standards

EFFECTIVE PURITY

If dried at 105° C. immediately before use, it is believed that the total impurity in this material will not exceed 1 part in 1,500. Without such drying, the total impurity will probably not exceed 1 part in 1,000, since this material is not appreciably hygroscopic, except when exposed to an atmosphere of very high humidity. The *absolute accuracy* attainable in its use for standardizing can not, however, be assumed to be greater than 1 part in 1,000, until an exhaustive investigation of the whole subject of volumetric standards has been made.

CONDITIONS FOR USE IN OXIDIMETRY

In a 400 ml beaker or Erlenmeyer flask dissolve 0.25 to 0.30 g of sodium oxalate in 200 to 250 ml of hot water (80° to 90° C.) and add 10 ml of sulphuric acid (1:1). Titrate at once with a 0.1 *N* solution of potassium permanganate, *stirring or shaking the solution vigorously and continuously*. The permanganate must not be added more rapidly than 10 to 15 ml per minute, and the last 0.5 to 1 ml must be added dropwise, with particular care to allow each drop to be fully decolorized before the next is introduced. The excess of permanganate used to cause an end point color must be estimated by matching the color in another beaker containing the same volume of acid and hot water. The temperature of the solution should not be below 60° C. by the time the end point is reached. For standardization of more dilute solutions of permanganate the same conditions are recommended except that the initial volume and size of sample are proportionately reduced.

Sodium oxalate is issued by this bureau primarily as an oxidimetric standard, since no thorough investigation has been made here of the effect of conditions upon the results obtained in its use as an acidimetric standard. For further details regarding the testing and use of sodium oxalate, including its use as an acidimetric standard, consult Circular No. 40 on "The Use of Sodium Oxalate as a Standard in Volumetric Analysis."

George K. Burgess
Director.

Washington, D. C., October 23, 1929