



# National Institute of Standards & Technology

## Certificate of Analysis

### Standard Reference Material 84j

$\text{KHC}_8\text{H}_4\text{O}_4$ , Potassium Hydrogen Phthalate

Acid Potassium Phthalate

Acidimetric Primary Standard

This Standard Reference Material (SRM) is intended for use as a primary standard for acidimetry in accordance with recommendations of the Analytical Chemistry Section of the International Union of Pure and Applied Chemistry (IUPAC) [1]. This lot of potassium hydrogen phthalate was prepared to ensure material of high purity and uniformity. It conforms to the American Chemical Society (ACS) specification for analytical reagent grade material, but should not be considered as entirely free from impurities, such as occluded water and traces of chlorides, sulfur compounds, and heavy metals. SRM 84j consists of approximately 60 g of potassium hydrogen phthalate.

The certified acidimetric assay of this lot of potassium hydrogen phthalate is:

$$99.996 \pm 0.002 \text{ wt } \%$$

Twenty-four samples selected from the lot were dried as indicated on page 2 of this certificate and assayed in duplicate by precise coulometric titration. The uncertainty shown,  $\pm 0.002$  wt. %, represents the 95% confidence interval of the mean based on twenty-four degrees of freedom.

The coulometric titration procedure used for certification was a modification of the method described in [2, 3, 4]. The value of the Faraday constant used in this work was 96,487.0 coulombs per mole.[5] The 1975 values for the atomic weights, based on Carbon-12, were used.[6]

The potassium hydrogen phthalate was obtained from J.T. Baker Co. of Phillipsburg, NJ. Homogeneity testing and coulometric evaluation of the acidimetric assay were performed by G. Marinenko of the NIST Inorganic Analytical Research Division.

The technical and support aspects involved in the original preparation, certification, and issuance of this Standard Reference Material were coordinated through the Standard Reference Materials Program by R.W. Seward. Revision of the Certificate was coordinated through the Standard Reference Materials Program by J.C. Colbert.

Gaithersburg, MD 20899  
January 11, 1993  
(Revision of Certificate dated 11-1-84)

William P. Reed, Chief  
Standard Reference Materials Program

(over)

**Drying:** For any analytical determination to be related to the above certified assay, the SRM must be crushed (not ground) to a fineness of approximately 100-mesh and dried for 2 h at 120 °C.

#### NOTICE AND WARNINGS TO USERS

**Expiration of Certification:** This certification will be valid for five years from the date of shipment of the SRM from NIST. Periodic reanalysis of representative samples from this SRM lot will be performed, and if significant changes are observed within the five-year period, the purchaser will be notified by NIST. Return the attached registration card to facilitate notification.

**Stability and Storage:** This SRM should be stored in a well-stoppered bottle (preferably the original bottle) at room temperature, protected from light and humidity.

#### REFERENCES

- [1] Report by Analytical Standards Sub-Committee, *Analyst* **90**, 251 (1956)
- [2] Taylor, J.K. and Smith, W.W., *J. Res.*, NBS **63A** (*Phys. and Chem.*), No. 2, 153 (1959)
- [3] Marinenko, G. and Taylor, J.K., *Anal. Chem.* **40**, 1645 (1968)
- [4] Marinenko, G. and Champion, C.E., *J. Res.*, NBS **75A** (*Phys. and Chem.*), No. 5, 421 (1971)
- [5] Taylor, B.N., *Metrologia* **12**, 81 (1976)
- [6] *Atomic Weights of the Elements 1975*, *Pure and Appl. Chem.* **47**, 75 (1976)