



National Institute of Standards & Technology

Certificate

Standard Reference Material[®] 200

Potassium Dihydrogen Phosphate

This Standard Reference Material (SRM) is a highly purified and homogeneous lot of crystalline potassium dihydrogen phosphate. It is intended primarily for use in the fertilizer industry as a working standard in the determination of potassium and phosphorus. A unit of SRM 200 is 90 g. The certified values listed below are reported as mass fractions [1].

Potassium Mass Fraction 28.76 % \pm 0.09 %
Phosphorus Mass Fraction 22.74 % \pm 0.02 %

Uncertainty: The uncertainties for the certified values represent the 95 % confidence limits calculated in $t s / \sqrt{n}$, where $t = 2.132$, $s = 0.16$, $n = 16$ for potassium, and $t = 2.201$, $s = 0.021$, $n = 12$ for phosphorus.

Analytical Determinations: Twelve bottles were selected at random from the lot for analysis. The value for potassium is based upon sixteen determinations, one on each of eight bottles and two on each of four of the remaining bottles. A gravimetric method was employed in which the potassium is converted to potassium sulfate by an ionexchange process. The variability between bottles was found to be no larger than that between duplicate samples from the same bottle. The certified value for phosphorus is based on twelve gravimetric determinations, one on each bottle, using the quinolinium phosphomolybdate method.

Drying Instructions: The potassium dihydrogen phosphate must be dried at 110 °C for 2 h before using.

The analytical measurements on which the certifications are based were made by R.K. Bell, M.M. Darr, and W.P. Schmidt of the NIST Analytical Chemistry Division.

The overall coordination of the technical work leading to certification was under the chairmanship of J.K. Taylor of the NIST Analytical Chemistry Division.

This Certificate of Analysis has undergone editorial revision to reflect program and organizational changes at NIST and at the Department of Commerce. No attempt was made to reevaluate the certificate values or any technical data presented on this certificate.

The technical and support aspects involved in the original preparation, certification, and issuance of this SRM were coordinated through the Standard Reference Materials Program by C.L. Stanley. Revision of this certificate was coordinated through the Standard Reference Materials Program by J.C. Colbert.

Gaithersburg, MD 20899
October 20, 1995
(Revision of certificate dated 8-7-74)

Thomas E. Gills, Chief
Standard Reference Materials Program

NOTICE AND WARNINGS TO USERS

Storage: The SRM should be stored in the tightly closed original bottle under normal laboratory conditions.

Expiration of Certification: This certification is valid for five years from the date of shipment from NIST.

Source of Material: This potassium dihydrogen phosphate was obtained from the J.T. Baker Chemical Company, Phillipsburg, NJ. It was examined for compliance with the specifications for reagent grade potassium dihydrogen phosphate and meets or exceeds all requirements as given in Reagent Chemicals, published by the American Chemical Society. A spectrochemical survey for trace contaminants indicated that no significant amounts of impurities were present.

SUPPLEMENTAL INFORMATION

The report of analysis supplied by J.T. Baker with this lot of material gives the following noncertified values:

Table 1. Noncertified Mass Fractions

Constituent	(in %)		
Assay (KH ₂ PO ₄)	100.05		
Loss on Drying (30 min at 150 °C)	0.05		
Particulate Matter (H ₂ O Solution)	0.0008		

Element	(in mg/kg)	Element	(in mg/kg)
Aluminum	<1	Molybdenum	<1
Arsenic	0.01	Nickel	<5
Barium	<2	Niobium	<10
Bismuth	<5	Nitrogen Compounds (as N)	<10
Cadmium	<0.4	Silicon	<0.5
Calcium	0.7	Silver	<0.5
Chromium	<5	Sodium	18
Cobalt	<5	Strontium	<0.5
Copper	0.7	Sulfate (SO ₄)	1
Halides (as Cl)	10	Tin	<5
Iron	1	Titanium	<1
Lead	<10	Vanadium	<1
Magnesium	0.3	Zinc	<0.2
Manganese	<1	Zirconium	<5
Mercury	<0.002		

REFERENCE

- [1] Taylor, B.N., Guide for the Use of the International System of Units (SI), NIST Special Publication 811, 1995 Ed., (April 1995).