

National Bureau of Standards

Certificate of Analysis

Standard Reference Material 694

Western Phosphate Rock

This Standard Reference Material (SRM) is intended for use in validating analytical methods and in calibrating instruments used in the analysis of this material.

The certified concentrations of the constituents and their uncertainties are listed in Table 1. These concentrations are the average concentrations calculated from the interlaboratory analyses of the material; the uncertainties represent two standard deviations of these averages.

Table 1. Certified Concentrations of Constituents

Constituent	Concentration, ¹ percent by weight	Constituent	Concentration, ¹ percent by weight
Al ₂ O ₃	1.8 ± 0.1	MnO	0.0116 ± 0.0012
CaO	43.6 ± 0.4	Na ₂ O	0.86 ± 0.04
CdO	0.015 ± 0.003	P ₂ O ₅	30.2 ± 0.1
F	3.2 ± 0.1	SiO ₂	11.2 ± 0.4
Fe ₂ O ₃	0.79 ± 0.06	U	0.01414 ± 0.00006 ²
K ₂ O	0.51 ± 0.02	V ₂ O ₅	0.31 ± 0.07
MgO	0.33 ± 0.02		

¹Based on a minimum sample size of 0.5 gram dried at 105 °C for 2 hours.

²The uncertainty of the uranium concentration is greater than two standard deviations of the average and includes an allowance for systematic error; the uncertainties for other elements represent two standard deviations of the average uncertainties.

This certification is invalid five years after the shipping date. Should it be invalidated before then, purchasers will be notified by NBS.

Statistical evaluation of the data was done by R.C. Paule, NBS National Measurement Laboratory.

The technical and support aspects involved in the preparation, certification, and issuance of this Standard Reference Material were coordinated through the Office of Standard Reference Materials by R. Alvarez.

June 21, 1984
Gaithersburg, MD 20899

Stanley D. Rasberry, Chief
Office of Standard Reference Materials

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ADDITIONAL INFORMATION ON THE COMPOSITION

The constituents listed in Table 2 are not certified but are included for information only.

Table 2. Noncertified Concentrations of Constituents

<u>Constituent</u>	<u>Concentration, percent by weight</u>
Cr ₂ O ₃	(0.10)
TiO ₂	(0.11)
ZnO	(0.19)

PREPARATION, TESTING, AND ANALYSIS

The material for this SRM came from the Dry Valley Ridge in Southeastern Idaho and was provided by Beker Industries Corp., Conda, Idaho, through the courtesy of N.K. Christensen. At NBS, the material was screened and that portion passing through a 150 μ m (100 mesh) sieve was retained. The retained material was then blended and bottled.

Homogeneity testing was performed by A. Marlow and P.A. Pella, NBS Center for Analytical Chemistry, using x-ray fluorescence spectrometry.

Analyses were performed in the following laboratories:

Beker Industries Corp., Conda, Idaho, N.K. Christensen.

Cominco, Kimberley Fertilizer Operations, Kimberley, Canada, B.C., K.J. McKenzie.

FMC, Phosphorus Chemicals Div., Pocatello, Idaho, C.D. Holmes.

Intermountain Analytical Services, Inc., Pocatello, Idaho, G.R. Pattie.

Monsanto Co., Soda Springs, Idaho, G.W. George.

National Bureau of Standards, Gaithersburg, Maryland, J.W. Gramlich, L.A. Machlan, A. Marlow, and P.A. Pella.

Western Cooperative Fertilizers Ltd., Calgary, Alberta, Canada, J.A. Simala.

J.R. Simplot Co., Helm Plant, Helm, California, L.S. Boyer.

J.R. Simplot Co., Pocatello, Idaho, G. Esplin.

J.R. Simplot Co., Minerals and Chemical Div., Pocatello, Idaho, J.R. Felkey.

Stauffer Chemical Co., Lefe, Wyoming, J. Linford.