U. S. Department of Commerce
Maurice H. Stans
Secretary

National Bureau of Standards
A. V. Astin, Director

Certificate of Analysis

Standard Reference Material 952

Enriched Boric Acid

Absolute Abundance Ratio, $^{10}B/^{11}B$	18.80 ± 0.02
Boron–10, atom percent	94.949 ± 0.005
Boron–11, atom percent	5.051 ± 0.005
H_3BO_3, acidimetric assay, weight percent	99.97 ± 0.02

The preparation furnished is an enriched boron–10 boric acid. It is slightly contaminated by occluded mother-liquor but the assay value should make it useful by direct weighing for a "spiking" material for boron assays, as well as a useful material for the calibration of mass spectrometers. The atomic weight of the boron, calculated from the absolute abundance ratio and the nuclidic masses 10.0129 and 11.0093, is 10.063.

The abundance ratio was determined by single-filament solid-sample mass spectrometry, using the ion $Na_2BO_2^+$. Mixtures of known $^{10}B/^{11}B$ ratio were prepared from high-purity separated isotopes and used as comparison standards. Correction was determined for the $^{16}O/^{17}O$ ratio ($^{11}B/^{10}B$ ratio -0.00079) by measuring mass 91 using the high-purity boron–11 separated isotope. The indicated tolerance is at least as large as the 95 percent confidence limits for a single determination which includes terms for inhomogeneities in the material as well as analytical error.

Details of the preparations and measurements are available in Special Publication 260–17. The material was prepared by the Oak Ridge National Laboratory. The material and the separated isotopes were purified and solutions prepared by K. M. Sappenfield and T. J. Murphy, coulometric titrations were made by G. Marinenko and C. E. Champion, mass-spectrometric measurements were made by E. J. Catanzaro and E. L. Garner, Analytical Chemistry Division.

The overall direction and coordination of the technical measurements leading to certification were performed under the chairmanship of W. R. Shields.

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 J. L. Hague.

Washington, D. C. 20234
February 28, 1969

W. Wayne Meinke, Chief
Office of Standard Reference Materials