

U.S. Department of Commerce
Juanita M. Kreps
Secretary

National Bureau of Standards
Ernest Ambler, Acting Director

National Bureau of Standards

Certificate of Analysis

Standard Reference Material 1568

Rice Flour

This Standard Reference Material is intended primarily for calibrating instrumentation and evaluating the reliability of analytical methods for the determination of minor and trace elements in rice flour and similar agricultural food products.

Certified Values of Constituent Elements: The certified values for the constituent elements are shown in Table 1. They are based on results obtained by two or more independent, reliable analytical methods. Non-certified values which are given for information only, appear in Table 2.

All values are based on a minimum sample size of 400 mg and are reported on a "dry-weight" basis.

Notice and Warnings to Users:

Expiration of Certification: This certification will be invalid after 5 years from the date of shipping. Should it be invalidated before then, purchasers will be notified by NBS.

Storage: The material should be kept in its original bottle and stored at temperatures between 10-30 °C. It should not be exposed to intense sources of radiation, including ultraviolet lamps or sunlight. Ideally, the bottle should be kept in a desiccator in the dark at the temperature indicated.

Use: The following procedures should be followed to relate the analytical determinations to the values reported in this Certificate. The bottle should be shaken well before each use, and a minimum sample of 400 mg of the material should be used. Selenium and mercury should be determined in the material without drying and the concentration values adjusted for the moisture content of the material using separate samples. Other elements may be determined either on samples without drying as indicated above or on samples vacuum-dried for 24 hr as indicated under "Instructions for Drying."

The overall direction and coordination of the technical measurements leading to this Certificate were performed under the chairmanship of H. L. Rook.

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.

Washington, D.C. 20234
January 3, 1978

J. Paul Cali, Chief
Office of Standard Reference Materials

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Table 1. Certified Values of Constituent Elements^a

Minor Constituents

<u>Element</u>	<u>Content Wt. Percent</u>
Potassium	0.112 ± 0.002 ^b
Calcium	0.014 ± 0.002

Trace Constituents

<u>Element</u>	<u>Content µg/g</u>	<u>Element</u>	<u>Content µg/g</u>
Manganese	20.1 ± 0.4	Arsenic	0.41 ± 0.05
Zinc	19.4 ± 1.0	Selenium	0.4 ± 0.1
Iron	8.7 ± 0.6	Cadmium	0.029 ± 0.004
Sodium	6.0 ± 1.5	Cobalt	0.02 ± 0.01
Copper	2.2 ± 0.3	Mercury	0.0060 ± 0.0007

^aAnalytical values are based on the "dry-weight" of material (see Instructions for Drying). Selenium and mercury should be determined on samples without drying and the results adjusted to a "dry-weight" basis by determining moisture on separate samples.

^bThe estimated uncertainty is based on judgment and represents an evaluation of the combined effects of method imprecision, possible systematic errors among methods, and material variability for samples 400 mg or more. (No attempt was made to derive exact statistical measures of imprecision because several methods were involved in the determination of the constituents).

Table 2. Non-certified Values for Constituent Elements^a

NOTE: The values shown in this table are not certified because they are not based on the results of two or more independent reliable methods. These values are included for information only.

Trace Constituents

<u>Element</u>	<u>Content µg/g</u>	<u>Element</u>	<u>Content µg/g</u>
Rubidium	(7)	Nickel	(0.16)
Molybdenum	(1.6)	Tellurium	(≤0.002)
Bromine	(1)		

^aAnalytical values are based on the "dry-weight" of material (see Instructions for Drying).

Instructions for Drying: Samples of this SRM must be dried before weighing according to the following procedure: Dry for 24 hours at 20 to 25 °C in a vacuum oven at a pressure not greater than 30 Pa (0.2 mm Hg).

Source and Preparation of Material:

The liver for this standard was obtained in the Portland, Oregon, area. The gross fat, major blood vessels, and "skin" were removed and the liver was ground. The ground liver was then mixed, transferred to polyethylene-lined trays, and lyophilized by Oregon Freeze Dry Foods, Inc., Albany, Oregon. After lyophilization, the liver was powdered in a Tornado mill, packaged in moisture-proof bags, and then transported to the National Bureau of Standards.

Analysts and Analytical Methods Used

Analytical Methods:

- A. Atomic absorption spectrometry
- B. Atomic emission spectrometry, flame
- C. Atomic emission spectrometry, inductively coupled plasma
- D. Ion chromatography
- E. Isotope dilution thermal source mass spectrometry
- F. Isotope dilution spark source mass spectrometry
- G. Kjeldahl method for nitrogen
- H. Neutron activation
- I. Polarography
- J. Spectrophotometry

Analysts:

Analytical Chemistry Division, National Bureau of Standards:

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|--------------------|-----------------------|
| 1. J.V. Bailey | 15. W.R. Kelly |
| 2. I.L. Barnes | 16. H.M. Kingston |
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| 4. C.G. Blundell | 18. G.M. Lambert |
| 5. K.A. Brletic | 19. R.M. Lindstrom |
| 6. T.A. Butler | 20. G.J. Lutz |
| 7. E.R. Deardorff | 21. L.A. Machlan |
| 8. M.S. Epstein | 22. E.J. Maienthal |
| 9. J.D. Fassett | 23. T.J. Murphy |
| 10. J.W. Gramlich | 24. P.J. Paulsen |
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| 12. S. Hanamura | 26. T.C. Rains |
| 13. S.H. Harrison | 27. T.A. Rush |
| 14. E.F. Heald | 28. R.L. Watters, Jr. |
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Cooperating Analysts:

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31. L. Kosta, A.R. Byrne, M. Dermelj, Institute "Josef Stefan", Ljubljana, Yugoslavia.