

National Bureau of Standards Certificate of Analysis

Standard Reference Material 929

Magnesium Gluconate Dihydrate

(Clinical Standard for Magnesium)

This Standard Reference Material is certified for use as an assay standard for magnesium. It is intended primarily for use in the calibration and standardization of procedures employed in clinical analysis and for the routine critical evaluation of daily working standards used in these procedures. The material is highly purified magnesium gluconate dihydrate, $\text{Mg}(\text{C}_6\text{H}_{11}\text{O}_7)_2 \cdot 2\text{H}_2\text{O}$.

MAGNESIUM, weight percent: 5.403 ± 0.022

This certified value is based on a minimum sample of 25 mg of the material dried to constant weight for at least 24 hours over anhydrous magnesium perchlorate. The certified value is based on the determination of magnesium in the *dried material* by thermal ionization isotope dilution mass spectrometry. Details of this method are reported elsewhere [1].

For mass spectrometric analysis, two different methods of magnesium separation were used. The uncertainty; 0.022, is the sum of: 0.014, the possible systematic differences between the methods; and 0.008, the 95 percent confidence limit for the mean.

The magnesium gluconate dihydrate used for this Standard Reference Material was obtained from the J.T. Baker Chemical Co., Phillipsburg, N.J.

The analyses were performed by L.A. Machlan, J.R. Moody, and L.J. Moore of the NBS Inorganic Analytical Research Division.

The statistical evaluation of the data was performed by H.H. Ku, NBS Statistical Engineering Division.

The overall direction and coordination of the technical measurements leading to certification were under the chairmanship of I.L. Barnes.

The technical and support aspects concerning preparation, certification, and issuance of this Standard Reference Material were coordinated through the Office of Standard Reference Materials by R.W. Seward.

Washington, D.C. 20234
April 27, 1979

George A. Uriano, Acting Chief
Office of Standard Reference Materials

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The water of hydration was determined on the dried material (see above) by the Karl-Fischer method using dry methanol and dimethyl sulfoxide (80:20) solvent. The water content was found to be 7.99 weight percent, which is in agreement with the theoretical value of 2 moles of water per mole of salt, 8.00 weight percent. Determination of water content was performed by S.A. Margolis, NBS Organic Analytical Research Division.

This Standard Reference Material is intended for "in vitro" diagnostic use only.

This material is intended for use as a standard for magnesium determination in clinical chemistry.

STORAGE: Standard Reference Material 929 should be stored in the tightly-closed, original bottle under normal laboratory conditions. Tests show this material to be hygroscopic and must be dried as directed before use; such drying will not remove water of hydration. Stored under these conditions, this material will show no significant change in properties. NBS will keep this lot under surveillance for five years after the date of last sale. If degradation occurs beyond the limit certified, NBS will notify purchasers. In the absence of such notification, the user should not use the material beyond five years after the purchase date.

A standard solution containing 5.00 mmol/L of magnesium may be prepared by placing 1.125 g of dried SRM 929 in a 500 mL volumetric flask and dissolving the material with laboratory reagent grade water.* Lower concentrations required for analysis may be prepared by accurate dilutions.

Solutions of SRM 929 prepared as above are stable for at least 60 days under normal laboratory conditions.

[1] Catanzaro, E.J.; Murphy, T.J.; Garner, E.L.; and Shields, W.R., J. Res. **NBS 70A**, No. 6, 553-558 (1966).

* Laboratory reagent grade water meeting any of the following specifications:
American Society for Testing and Materials (ASTM), D1193-Type II;
College of American Pathologists (CAP), Type II;
National Committee for Clinical Laboratory Standards (NCCLS), Type I.