



# National Institute of Standards & Technology

## Certificate of Analysis

### Standard Reference Material 929

#### Magnesium Gluconate Dihydrate

(Clinical Standard for Magnesium)

This Standard Reference Material (SRM) 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,  $\text{Mg}(\text{C}_6\text{H}_{11}\text{O}_7)_2 \cdot 2\text{H}_2\text{O}$  and is supplied in a unit of 5 g.

The certified value for Magnesium:  $5.403 \pm 0.022$  wt. %

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 SRM was obtained from the J.T. Baker Chemical Co., Phillipsburg, NJ.

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

The certification analyses were performed by J.D. Fassett, J.R. Moody, and M.S. Rearick of the NIST Inorganic Analytical Research Division.

The statistical evaluation of the data was performed by S.B. Schiller, NIST Statistical Engineering Division.

The technical and support aspects involved in the revision, update, and issuance of this Standard Reference Material were coordinated through the Standard Reference Materials Program by J.C. Colbert.

#### NOTICE AND WARNINGS TO USERS

This SRM is intended for "in vitro" diagnostic use only.

**Expiration of Certification:** This certification will be valid for three years from the date of shipment from NIST. Periodic reanalysis of representative samples from this SRM will be performed, and if significant changes are observed within the three-year period, the purchaser will be notified by NIST. Please return the enclosed registration card to facilitate notification.

Gaithersburg, MD 20899  
March 2, 1993  
(Revision of certificate dated 4-27-79)

William P. Reed, Chief  
Standard Reference Materials Program

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**Storage:** SRM 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.

**Drying Instructions:** This certified value is based on a minimum sample of 250 mg of the SRM dried to constant weight for at least 24 h 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].

**Directions for Use:** 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.

\* 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.

**Stability of Prepared Solution:** Solutions of SRM 929 prepared as above are stable for at least 60 days under normal laboratory conditions.

#### REFERENCE

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