National Institute of Standards & Technology

Certificate

Standard Reference Material 927a

Bovine Serum Albumin (7% Solution)
(Total Protein Standard)

This Standard Reference Material (SRM) is certified as a solution of known protein concentration and purity. It conforms to the specification for standardized protein solution approved by the National Committee for Clinical Laboratory Standards (NCCLS)[1]. The Bovine Serum Albumin (7% solution) was brought to proper ionic strength with sodium chloride and to proper pH with sodium hydroxide. It was sterilized by membrane filtration and tested for sterility by approved methods[2]. This SRM is intended primarily for use in calibrations, in the standardization of procedures employed in clinical analyses for total serum protein, and for critical evaluation of daily working standards used in these procedures, and as a reference standard for assays of total protein by colorimetric methods. A Biuret reference method[3], was employed to determine protein content in SRM 927a using SRM 927 as an external standard. It is suggested that this Biuret method be used to standardize laboratory-prepared protein solutions and "normal" serum pools. Such standardized "normal" sera could then be used to calibrate refractometers or other instruments for serum protein estimations. SRM 927a may also be used for other procedures, such as gel diffusion, amino acid analysis, electrophoresis, nitrogen assays, or other tests which require well-characterized protein.

Certified concentration of peptide mass by a Biuret method[3] is: 72.17 ± 0.26 g/L.

(The estimated uncertainty is expressed as two standard deviations of the certified concentration).

NOTICE AND WARNING TO USERS

This SRM is not to be used in standardizing dye-binding tests, for checking precalibrated refractometers, or as an immunochemical standard. It is not recommended for use in bilirubin standardization. This Standard Reference Material (SRM) is intended for "in vitro" diagnostic use only.

Protein solutions of lower concentration may be prepared by transferring the appropriate aliquot to a volumetric flask and diluting to volume. Diluents are not furnished with the SRM; however, an aqueous diluent, such as 0.15 mol/L sodium chloride solution, may be used.

The bovine serum albumin solution was prepared by the Research Division, Miles Laboratories, Inc., Kankakee, IL. Analyses were performed in the NIST Analytical Chemistry Division by D.J. Reeder, D.K. Hancock, M.C. Kline, W.F. Koch, G. Marinenko, and K. Han.

The statistical analysis of the data used for certification was performed by R.C. Paule of the NIST National Measurement Laboratory.

The overall direction and coordination of technical measurements leading to the certification was performed in the NIST Analytical Chemistry Division under the chairmanship of D.J. Reeder.

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

Gaithersburg, MD 20899
January 13, 1993
(Revision of certificate dated 8-15-86)

William P. Reed, Chief
Standard Reference Materials Program

(over)

STABILITY: This SRM is supplied to the user in sealed ampules. It must be stored such that the temperature of the solution does not exceed 4°C; nor may the solution be allowed to freeze. Once an ampule is opened, the solution should be used promptly. Storage of opened ampules is not recommended. Under proper storage in sealed ampules this SRM is expected to be stable for 3 years from date of shipment from NIST. Stock of this SRM kept at NIST will be monitored periodically and if degradation is evident, purchasers will be notified. It is recommended that this material not be used after 3 years from date of shipment from NIST.

REFERENCES

[1] Specification for Standardized Protein Solution (Bovine Serum Albumin), NCCLS Approved Standard: ASC-1, National Committee for Clinical Laboratory Standards, Villanova, PA, Second Edition, 1979.

[2] United States Pharmacopeia, 21st Revision, p. 1350 Class A, United States Pharmacopeial Convention, Rockville, MD.

[3] Doumas, B.T., et al, A Reference Method for the Determination of Total Protein, Clin. Chem. **27** (10): 1642-1654 (1981).

[4] Reeder, D.J., Sniegoski, L.T., and Schaffer, R., o-Phthalaldehyde for the Fluorometric Assay of Nonprotein Amino Compounds, Anal. Biochem **86**: 490-497 (1978).