



National Institute of Standards & Technology

Certificate of Analysis

Standard Reference Material 1701a

Carbon Dioxide and Oxygen in Nitrogen (Nominal Concentration) (Carbon Dioxide 5%, Oxygen 12%) (Blood Gas Standard)

This Standard Reference Material (SRM) is intended primarily for the calibration of instruments used for the analysis of blood gases. It is not intended as a working standard, but rather as a primary standard to which the concentration of daily working standards may be related. SRM 1701a is supplied in a medical type cylinder at a pressure of 13.1 MPa (1900 psi) with a deliverable volume of 0.56 m³ (20 cubic feet). The cylinder conforms to DOT specifications and is equipped with a CGA-500 valve. The cylinder becomes the property of the purchaser.

Carbon Dioxide Concentration: ± mole percent

Oxygen Concentration: ± mole percent

Sample Number:

The concentration of carbon dioxide and oxygen is relative to all other constituents of the gas. The uncertainty shown is the estimated upper limit of error of the certified value and is the 95% confidence interval based on allowances for known sources of possible error.

Each cylinder of gas in the SRM lot is individually analyzed and the certified values appearing above applies to the contents of the cylinder identified by the sample number on this certificate.

The certified values on this certificate are valid two years from the date of shipment from the National Institute of Standards and Technology (NIST). A validation sticker is supplied with the cylinder. Please affix this sticker to the cylinder as it validates the certification period for this SRM.

CAUTION: Care must be taken to avoid accidental contamination of the sample during the use of the cylinder with any gas handling system.

The development and evaluation of the gravimetric primary standards used to certify this SRM were performed at the NIST by R. Myers and R.V. Kelly.

The overall direction and coordination of the technical measurements leading to certification were performed in the NIST Gas and Particulate Science Division under the chairmanship of W.D. Dorko.

The technical and support aspects involved in the preparation, certification, and issuance of this SRM were coordinated through the Office of Standard Reference Materials by R. Alvarez.

August 29, 1988
Gaithersburg, MD 20899

Stanley D. Rasberry, Chief
Office of Standard Reference Materials

Preparation

The cylinder identified in this certificate is one of a group or "lot" of cylinders. A lot contains a minimum of 26 cylinders and is prepared commercially according to rigid specifications so that it is homogeneous and stable. Each cylinder in the lot was individually analyzed at the NIST for the certified components.

Analysis

The concentrations of carbon dioxide and oxygen in this SRM were determined by comparison with sets of the NIST gravimetric primary standards. The intercomparisons were performed using a gas chromatograph equipped with a thermal conductivity detector.

Stability

This SRM is contained in a disposable steel cylinder. The stability is considered good and no change in the concentrations of the certified components has been observed in similar samples contained in this type cylinder. Periodic reanalyses of representative samples from this lot will be performed at the NIST, and if significant changes are observed within the two year period, purchasers of the SRM will be notified.