

National Bureau of Standards

Certificate of Analysis

Standard Reference Materials 1673, 1674, and 1675 Carbon Dioxide in Nitrogen (Mobile-Source Emission Gas Standard)

This Standard Reference Material (SRM) is intended for use in the calibration of instruments used in the analysis of carbon dioxide in mobile-source emissions. It is not intended as a daily working standard, but rather a primary standard to which the concentrations of the daily working standard may be related.

Standard Reference Material Number

Cylinder number

Carbon dioxide concentration mole percent

The concentration of carbon dioxide is relative to all other constituents of the gas mixtures.

Each cylinder of gas is individually certified, and the analysis given on this certificate applies only to that cylinder identified on this certificate. The inaccuracy of the analysis is estimated to be within a coefficient of variation of one percent. This estimate is based on the 95 percent confidence interval of the mean of the individual analyses and allowances for known sources of possible error.

The carbon dioxide in nitrogen mixtures were prepared by the Linde Division, Union Carbide Corporation, East Brunswick, New Jersey.

Chemical analyses leading to the certification of this Standard Reference Material were performed by E. E. Hughes and W. P. Schmidt.

The overall direction and coordination of the technical measurements leading to certification were performed under the chairmanship of E. E. Hughes and J. K. Taylor.

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 T. W. Mears.

Washington, D. C. 20234
March 30, 1973

J. Paul Cali, Chief
Office of Standard Reference Materials

(over)

Analysis

Carbon dioxide in this Standard Reference Material was determined by comparison with a secondary standard that had previously been intercompared with a set of gravimetric primary standards. The imprecision of intercomparison is less than 0.3 percent of the concentration of carbon dioxide. The method of intercomparison was gas chromatography using thermal conductivity determination of carbon dioxide. The gravimetric standards against which the secondary standard was analyzed were prepared at such concentrations and in such numbers that non-linearity of the thermal conductivity detection was minimized. The limits of inaccuracy represent the uncertainty in the concentration of carbon dioxide in the gravimetric primary standards.

Stability

The stability of these mixtures is considered to be excellent. No loss of carbon dioxide has been observed in either the standards or the Standard Reference Material. Periodic reanalyses of representative samples from this batch will be performed, and if any change in concentration is observed the purchasers of other samples from this batch will be notified.

The Standard Reference Material should be stored at room temperature and should not be allowed to experience either high or low ambient temperatures.