

U.S. Department of Commerce
Elliot L. Richardson,
Secretary

National Bureau of Standards
West Ambler, Acting Director

National Bureau of Standards Certificate of Analysis

Standard Reference Material 1659

Methane in Air (Ambient Air Quality Gas Standard)

This Standard Reference Material is intended for use in the calibration of instruments used for the analysis of methane in ambient air. It is not intended as a daily working standard, but rather as a primary standard to which the concentration of the daily working standards may be related.

Methane concentration: $9.43 \pm 0.08 \mu\text{mol/mol}$ (ppm)

The concentration of methane is relative to all other constituents of the gas.

Each cylinder of gas is individually analyzed, but the concentration appearing on this certificate applies to all samples within the lot. The concentration of all samples in the lot fell within a limit of ± 0.3 percent of the average for the lot and all samples are considered identical within the stated limits of accuracy.

The methane in air mixtures were prepared by MG Scientific, Kearny, N.J.

Chemical analyses leading to the certification of this Standard Reference Material were performed at the National Bureau of Standards by W. P. Schmidt and A. Aaron.

The overall direction and coordination of 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
September 16, 1976

J. Paul Cali, Chief
Office of Standard Reference Materials

(over)

Analysis:

Methane in this Standard Reference Material was determined by comparison with a secondary standard that had been previously intercompared with a set of gravimetric primary standards. The imprecision of intercomparison is less than 0.3 percent of the concentration of the methane. The method of intercomparison was gas chromatography using a flame-ionization detector. The limits of inaccuracy represent the uncertainty in the concentration of methane in the primary gravimetric standards and the imprecision of intercomparison.

This sample is certified only for the concentration of methane. No other hydrocarbons were detected in this sample.

Stability:

The stability of these mixtures is considered to be excellent. No loss of methane has been observed in standards prepared in similar cylinders and held for several years. 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.

These gases are supplied in cylinders at 12.4 MPa (1800 psi) pressure with a delivered volume of 0.88m³ (31 cubic feet) at STP. The cylinders conform to the DOT 3AA-2015 specification and are equipped with CGA-580 valves.