U.S. Department of Commerce
Rogers C. B. Morton,
Secretary
National Bureau of Standards
Ernest Ambler, Acting Director

National Bureau of Standards Certificate of Analysis

Standard Reference Material 1665a

Propane in Air
(Mobile-Source Emission Gas Standard)

This Standard Reference Material is intended for use in the calibration of instruments used for the analysis of hydrocarbon in mobile-source emissions. 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.

Propane concentration: 2.76 ± 0.03 parts per million by volume

The concentration of propane 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 propane in air mixtures were prepared by Precision Gas Products, Inc., Rahway, N. J.

Chemical analyses leading to the certification of this Standard Reference Material were performed at the National Bureau of Standards by W. D. Dorko, D. G. Friend and S. Meeks.

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
November 1, 1975

J. Paul Cali, Chief
Office of Standard Reference Materials

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Analysis

Propane 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 propane. The method of intercomparison was gas chromatography using a flame ionization detector. The limits of inaccuracy represent the uncertainty in the concentration of propane in the primary gravimetric standards and the imprecision of intercomparison.

This sample is certified only for the concentration of propane. In addition to propane, trace quantities of other hydrocarbons and organic halides have been detected and measured. The concentrations of these compounds are relative to all other constituents in the mixture as follows:

Methane	0.06 ppm
Ethane	.004 ppm
2-Methylpropane (Isobutane)	.004 ppm
2-Fluoropropane	.002 ppm

The oxygen content of this sample is 20.9 mole percent.

Stability

The stability of these mixtures is considered to be excellent. No loss of propane 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.

These gases are supplied in cylinders at 1800 psi (12.4 MPa) pressure with a delivered volume of 31 cubic feet (880 liters) at STP. The cylinders conform to the DOT 3AA-2015 specification and are equipped with CGA-580 valves.