

The concentration of NO_x is relative to all other constituents of this gas mixture. The uncertainty shown is the estimated upper limit of error of the certified value at the 95 % confidence interval. This uncertainty includes the estimated inaccuracy of the NIST primary gravimetric standards, the imprecision of the comparison of the batch standards with NIST primary gravimetric standards, and the imprecision of the comparison of the SRM with the batch standards.

CAUTION: Care must be taken to avoid contamination of the sample (especially with adsorbed moisture) during the use of the cylinder with any gas handling system.

Each cylinder of gas is individually analyzed, and the concentration given applies only to the cylinder identified by cylinder number and sample number on this certificate.

The certified value on this certificate is valid for 2 years from the date of shipment from NIST. A validation sticker is supplied with each gas cylinder to validate its certification period. Please affix the sticker to the cylinder upon receipt of the SRM.

Material Preparation: The cylinder identified on this certificate is one of a group or "lot" of cylinders. A lot consists of a minimum of 26 cylinders and is prepared commercially according to rigid specifications to ensure that the lot is homogeneous and stable. Each cylinder is individually analyzed at NIST for its total NO_x content.

Analysis: The total NO_x concentration for this SRM was determined by passing the sample gas through a hot stainless steel converter which disassociates NO_2 dioxide and HNO_3 , with high efficiency, to NO . The outlet gas stream from the converter is passed directly to a commercial chemiluminescent NO/NO_x continuous analyzer. The output voltage from the analyzer is fed to a signal averager under computer control. Careful measurements of thermal converter and oxygen recombination loss efficiencies have allowed the referencing of this SRM to NIST Nitric Oxide in Nitrogen primary standards.

The percent of HNO_3 acid is determined by observing the total NO_x response difference before and after trapping the nitric acid on a nylon membrane filter.

STABILITY: Total NO_x concentrations in similar cylinders have been observed to be stable for more than 2 years. However, the ratio of HNO_3 has been observed to slowly increase with time in some SRM lots at the expense of nitrogen dioxide. The total NO_x remained unchanged in all cylinders studied.

Reanalysis: NIST will reanalyze this SRM for the original purchaser for a fee not to exceed the current analytical cost of similar SRMs available at the time of the request for reanalysis, provided the cylinder pressure is at least 6.9 MPa (1000 psi). The original purchaser should contact the NIST Organic Analytical Research Division at (301) 975-3108 to arrange for this service.