

February 2022: Concern with Certain Calibration Gas Mixtures Sold as Protocol Gases Not Meeting Long-Term Stability Requirements

On February 25, 2022, Douglas Jager of EPA-OAQPS and Bob Wright of EPA-ORD sent a memorandum (<https://www.epa.gov/amtic/ambient-air-protocol-gas-verification-program>) providing notification to specialty gas producers, EPA Regional Offices, and to State, Local, and Tribal (SLT) ambient air monitoring programs that gaseous calibration standards used for the calibration and the QA/QC of monitors intended to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS) must be EPA Protocol Gases. The EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards defines the assay requirements that must be followed for a candidate standard to be certified as an EPA Protocol Gas, including a seven-day stability test for reactive gas mixtures. Candidate standards that pass the stability test are assumed to be stable throughout the maximum certification periods that are listed in Table 2-3 of the protocol (see attached). These periods are based on the certification periods for the corresponding Standard Reference Materials (SRMs) from the National Institute of Standards and Technology (NIST), which has evaluated SRM stability over multiple years. Gas mixtures that are not listed in Table 2-3 have not been demonstrated to have long-term stability and cannot be certified as EPA Protocol Gases.

EPA is aware that, in some cases, SO₂-in-air and NO₂-in-N₂ standards may have been certified by specialty gas producers as EPA Protocol Gases. These standards are not listed in Table 2-3 of the Traceability Protocol and thus are not EPA Protocol Gases. EPA is working with the producers to notify them to cease certifying or otherwise indicating that these standards are EPA Protocol Gases until their long-term stability has been demonstrated to EPA and the protocol has been revised to include them in Table 2-3.

We have been asked by several testers and air agencies about the use of NO₂ in N₂ for the NO_x converter efficiency test. Until such time as NO₂ in N₂ is added to Table 2-3, the alternative procedure in Section 16.2 of Method 7E can be used.

There have also been questions about the use of blended cylinders containing SO₂ and O₂ in a balance of N₂. The maximum O₂ allowed in a SO₂ EPA Protocol Gas is much lower than the mid-range for O₂ used for calibration error (CE) /calibration drift (CD), therefore a blended cylinder can no longer be certified as a protocol gas.

Questions or comments related to this memorandum may be addressed to Kim Garnett, garnett.kim@epa.gov or Walter Lin, lin.walter@epa.gov.