This is a free page sample. Access the full version online.

Australian/New Zealand Standard™

Methods for sampling and analysis of ambient air

Method 2.2: Preparation of reference test atmospheres—Compressed gas method

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EV-007, Methods for Examination of Air as an Australian/New Zealand Standard to supersede AS 3580.2.2—1990. The Standard deals with the preparation of reference test atmospheres for ambient air analysers utilizing compressed gas Certified Reference Materials (CRMs).

FOREWORD

The calibration and verification of ambient air analyser response is principally carried out utilizing a compressed gas CRM and associated dilution apparatus. This has resulted in a need to standardize the procedures followed and to specify quality assurance requirements.

METHOD

1 SCOPE

This Standard sets out a method for the preparation of reference test atmospheres containing known concentrations of determinand(s), using a calibration gas dilution method.

The method is applicable to components that do not react with each other, the cylinder walls or the dilution gas, and that remain totally vaporized in the cylinder at all pressures and temperatures anticipated during the preparation and use of the reference test atmosphere.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

2030	The verification, filling, inspection, testing and maintenance of cylinders for storage and transport of compressed gases
2030.1	Part 1: Cylinders for compressed gases other than acetylene
2473	Valves for compressed gas cylinders
2473.1	Part 1: Specifications, type testing, and manufacturing tests and inspections

COPYRIGHT

This is a free page sample. Access the full version online.

ISO
Guide to the expression of uncertainty in measurement (ISO GUM)

NATA
Technical Note 8 In-situ calibration of barometers

Technical Note 19 Liquid-in-glass thermometers—Selection, use and calibration checks

3 DEFINITIONS

For the purpose of this Standard the following definitions apply:

3.1 Certified Reference Material (CRM)

Reference material, accompanied by an endorsed document issued by either a NATA/IANZ accredited calibration laboratory, or a calibration laboratory accredited by one of NATA/IANZ's Mutual Recognition Agreement (MRA) partners, one or more of whose property values are certified by a procedure which establishes traceability to an accurate realisation of the unit in which the property values are expressed, and for which each certified value is accompanied by an uncertainty at a stated level of confidence.

3.2 Full scale

The nominated maximum concentration for which an instrument has been calibrated. Selected to cover the normal range of values expected in the sampling environment.

3.3 Linearity

The deviation of an analyser's output from a line of best fit when subjected to varying test atmospheres.

3.4 Parts per million (ppm)

A ratio expressing the volume of gaseous pollutant contained in 1 000 000 volumes of atmosphere. It may be expressed in terms of millilitres per cubic metre as the values are identical. Alternatively, it is one million times the ratio of the partial pressure of gaseous pollutant to the pressure of the atmosphere in which it is contained.

3.5 Test atmosphere

A reference test atmosphere containing a known concentration of pollutant.

3.6 U_{95}

A measurement uncertainty at a confidence interval of 95% according to ISO GUM.

3.7 Zero air

Air free from contaminants likely to cause a detectable response on the test analyser.

4 PRINCIPLE

The reference test atmosphere is produced by the dilution of a compressed gas CRM utilizing zero air.

5 APPARATUS

5.1 Certified Reference Material cylinder

A gravimetric or volumetric standard compressed gas CRM that serves as a source of determinand of known concentration.

COPYRIGHT

SAI GLOBAL

This is a free preview. Purchase the entire publication at the link below:

Product Page

Looking for additional Standards? Visit Intertek Inform Infostore

Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation