Calibration Gas Standards and Calibration Gas Generators from VICI Metronics

VICI Metronics, Inc. in Poulsbo, Washington is the leading manufacturer of devices and instruments that are used in the generation of calibration gas standards, including Dynacal® and G-Cal permeation tubes and Dynacalibrator® and G-Cal calibration gas generators. The product line also includes gas purifiers, contaminant traps, and GC Industries oxygen and toxic gas monitors. Metronics is also the leading provider of explosives, narcotics, and chemical warfare dopants for TSA airport security (ammonia, DCM, and BHT), law enforcement, border patrol, military, and other trace detection industry professionals.

Calibration Gas Standards

The purpose of a calibration gas standard is to establish a reference point for the verification of an analysis. Permeation tube rates can be certified using standards traceable to NIST by the most basic and accurate laboratory procedure – measuring the gravimetric weight loss over a known period of time at a known temperature. Permeation rate data is already established for hundreds of different compounds, and rates for new compounds can be easily certified using NIST-traceable standards.

Advantages

Calibration devices from VICI Metronics offer several advantages over cylinder-supplied gas calibration standards. Multi-component gas mixtures can be easily generated with NIST traceability employing established EPA and ASTM protocols by using the appropriate combination of permeation devices. The technique also allows the removal of a single component from a gas mixture by simply removing the appropriate permeation device.

A wide range of concentrations can easily be generated by simply varying either the dilution flow rate and/or the set point temperature. In addition, their small size and inherent stability allow us to inventory thousands of devices for delivery from stock. Because of the size and the limited quantity of chemical fill, we can offer overnight delivery via air express.

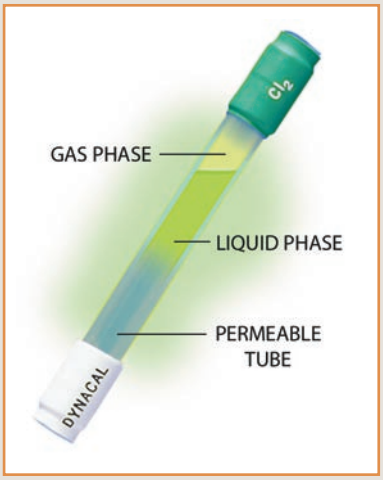
By contrast, bottled trace level (ppb and ppm) standards can be very expensive, and calibrations requiring multiple components over a wide range of concentrations require a large number of gas cylinders, consuming valuable lab space as well. Problems can also arise from degradation of the standard within the cylinder, from changes in cylinder pressure, and from interaction of calibration components and surfaces.

TO ORDER
For prices or more information about specific compounds available in permeation devices, contact VICI Metronics:

Toll-free 877–737–1887
Tel 360–697–9199
Fax.....360–697–6682

vicimetronics.com

Dynacal® Permeation Devices



- Ideal for lab environments
- Smaller than G-Cal devices
- More accurate than G-Cal devices
- Require a temperature-controlled environment
- Inexpensive calibration solution

Dynacal permeation devices are small, inert capsules containing a pure chemical compound in a two phase equilibrium between its gas phase and its liquid or solid phase. At a constant temperature, the device emits the compound through its permeable portion at a constant rate. Devices are typically inserted into a carrier flow to generate test atmospheres for calibrating gas analyzer systems, testing hazardous gas alarms, or conducting long-term studies of effects on materials or biological systems – in short, any situation requiring a stable concentration of a specific trace chemical.

MORE INFORMATION
G-Cal perm tubes. . .p. 232

COMPOUNDS AVAILABLE IN DYNACAL PERM DEVICES

Literally hundreds of compounds are available in our permeation devices. This list is merely representative of the range we offer. Contact us if you don't see what you're looking for.

Ammonia
Benzene
Carbon disulfides
Carbon tetrachloride
Chlorine
Dichloromethane
Dimethyl sulfide
Ethanol
Ethylene oxide
Freon
Formaldehyde
Hydrogen cyanide
Hydrogen fluoride
Hydrogen sulfide
Iodine
Isopropyl alcohol
Mercury
Methanol
Methyl bromide
MTBE
Nitrogen dioxide
Octane
Sulfur dioxide
Sulfur hexafluoride
Thiophene
Toluene
Vinyl acetate
Water

Xylenes

Tubular device

The tubular device, a sealed permeable cylinder containing the desired permeant reference material, is the most widely used of the various permeation devices. Release of the chemical occurs by permeation through the walls of the Teflon® tube for the entire length between the impermeable plugs. A wide range of rates can be achieved by varying the length and thickness of the tube, with typical rates ranging from 5 ng/min to 50,000 ng/min.

Extended life tubular device

Our unique extended life tubular (XLT) device is essentially a standard tubular device coupled to an impermeable stainless steel reservoir. This design offers a range of permeation rates corresponding to a tubular device but has a significantly enhanced lifetime – by a factor of 3 for a 5 cm (active length) device or a factor of 12 for a 1 cm device.

Wafer device

Wafer devices have only a small permeable window, or wafer, so permeation rates are typically lower than rates for tubular devices. Since permeation occurs only through the polymeric wafer, the permeation rate is controlled by varying the wafer material, the thickness of the wafer, and the diameter of the permeation opening. Gases whose high vapor pressure at normal permeation temperatures prevent their containment in a tubular device can be contained in a wafer device. Wafer devices are available in different styles to allow use in calibrators made by various manufacturers.