Product Data Sheet

Formaldehyde Diffusion Tube (PN: Refer to the specifications table)

• Description

The Formaldehyde Diffusion Tube is a precision-engineered, temperature-dependent dynamic gas generation source,designed for the SemeaTech Gas Sensor Calibrator to generate controlled quantities of formaldehyde gas. It is widely used across various industrial and laboratory settings, particularly for the calibration of gas sensors and detectors,scientific research, and the testing of leak detection systems. Thanks to its advanced diffusion technology, the tube releases formaldehyde gas at a stable and precise rate, thereby enabling users to achieve highly accurate measurement results

• Specifications

Gas Type	Formaldehyde
Concentration	Any target concentration within the range of 1–10 ppm (buyer to specify on PO)
Precision	±5%
Service Life	30 hours in 30 days
Packaging Quantity	3 tubes/box (PN: 411-0500-030) 8 tubes/box (PN: 411-0500-080)
Shelf Life	12 months
Vial Material	High-density polyethylene (HDPE)
Weight	6.3 g/tube
Size	Height/Diameter: 66.40/16.50 mm
Storage Conditions	Refrigerated, protected from light,stored vertically

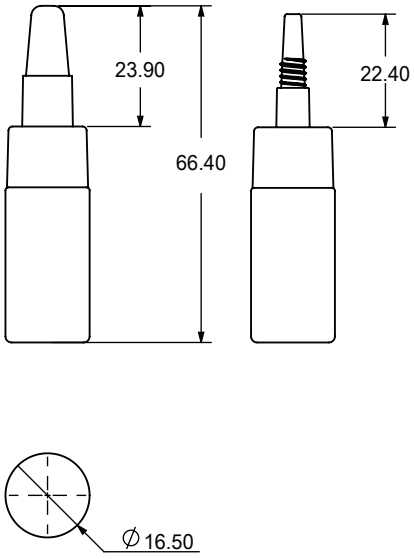
• Features

High Precision	Releases formaldehyde gas at a controlled rate, ensuring calibration accuracy
Durability	Made of high-quality materials, resistant to formaldehyde chemical reactions
Ease of Use	Simple structure, easy to operate, safe and reliable
High Stability	Delivers formaldehyde gas at a stable,defined concentration throughout its service life

• Application

Gas Detector/Sensor Calibration – Used to test and confirm the accuracy of formaldehyde sensors in industrial gas detectors.
Laboratory Research – Can be used for experiments and tests requiring controlled amounts of formaldehyde gas.

• Product Dimensions



All dimensions in mm.
All tolerances ±0.20 mm unless otherwise stated.

• Safety Notes

1. This product must be used in a fume hood to comply with safety regulations.
2. When operating the chemical vial, do not touch the bottleneck with bare hands; please wear gloves, safety goggles and other PPE.

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• Operating Instructions

Step 1 Install the dehumidifier (supplied with the Gas Sensor Calibrator) at the air inlet of the Gas Sensor Calibrator.
Step 2 Disconnect one end of the Tygon tubing, lift the dilution chamber up out of the main unit; remove the tube from the bottom of the dilution chamber, and place the dilution chamber with the opening facing up.
Step 3 Carefully unscrew and remove the cap.
Step 4 Use tweezers (supplied with the calibrator) to grip the neck of the diffusion tube, slowly insert it into the bottom of the dilution chamber, ensuring the diffusion tube is positioned correctly, without tilting.
Step 5 Screw the tube at the bottom of the dilution chamber back into place. When the tube opening is flush, if the scalemark at the bottom of the dilution chamber aligns with the gray arched area on the top acrylic plate, it indicates the assembly is tightened into place. Do not over-tighten, as this may damage the sealing structure or housing of the dilution chamber.
Step 6 Reinsert the dilution chamber into the calibrator and ensure the tubing is securely and correctly connected to the dilution chamber ports.
Step 7 Using a separate gas tubing (a PTFE tube shorter than 1.5 m is suggested), connect the gas outlet to the formaldehyde device to be calibrated or tested.
Step 8 Power up the calibrator according to the operating instructions of the Gas Sensor Calibrator.
Step 9 Referring to the diffusion tube's calibration certificate, set the operating temperature (using the up(▲)/down(▼) keys) and the flow rate (by adjusting the gas flow knob). When reading the flow rate, align the top of the float inside the glass tube with the scale on the side of the rotameter.
Caution: Maintaining a non-zero flow helps extend the pump's service life.
Step 10 Before initial use, allow the calibrator to run freely for 30 minutes or longer. After this period, the output gas concentration will stabilize and be ready for calibrating or bump testing formaldehyde monitors or sensors.
Step 11 Begin the calibration or testing procedure.
Step 12 After calibration, use tweezers to remove the diffusion tube from the dilution chamber.
Step 13 Screw the cap back onto the diffusion tube securely.
Step 14 Properly store the diffusion tube for future use.
Step 15 Before shutting down, let the flow control system run for approximately 10 minutes to purge any residual trapped gas.
Step 16 Set the operating temperature to 0°C by adjusting the up/down keys.
Step 17 Power off.

Note 1: Leaving the diffusion tube in the dilution chamber after each use can cause gas concentration to build up in the dilution chamber, extending the time the calibrator needs to reach a stable output gas concentration at the next use.
Note 2: When the desiccant inside the dehumidifier turns light red, it is recommended to replace the desiccant.
Note 3: This chemical vial can provide a stable gas concentration output continuously for 30 hours. The following conditions must be met:

1. After use, seal it (tighten the cap on the diffusion tube), and store it protected from light, refrigerated, and stored vertically.
2. It must be used within 30 days of first opening.

• Certification Disclaimer

This Formaldehyde Diffusion Tube was individually calibrated in the SemeaTech lab using qualified formaldehyde cylinder gas as the standard. This Certificate of Calibration certifies that the Formaldehyde Diffusion Tube is traceable to the GBW by an unbroken chain of standards for the duration specified. SemeaTech adheres rigorously to ISO 9001 procedures during the entire manufacturing process.